

VISUAL IMPACT ASSESSMENT

San Diego Freeway (I-405) Improvement Project
SR-73 to I-605

Orange and Los Angeles Counties

12-ORA-405 PM 9.3/24.2 / 07-LA-405 PM 0.0/1.2
12-ORA-22 PM R0.7/R3.8 / 12-ORA-22 PM R0.5/R0.7
12-ORA-73 PM R27.2/R27.8 / 12-ORA-605 PM 3.5/R1.6
07-LA-605 PM R0.0/R1.2

EA 0H1000
EFIS ID 1200000180



May 2011



STATE OF CALIFORNIA
Department of Transportation

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Acronyms and Abbreviations

Term	Definition
Caltrans	California Department of Transportation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CSS	Context Sensitive Solutions
EB	Eastbound
FHWA	Federal Highway Administration
GP	General Purpose (Traffic Lanes)
HOV	High Occupancy Vehicle
I-405	Interstate 405 Freeway, San Diego Freeway
I-605	Interstate 605, San Gabriel Freeway
LOS	Level of Service
NB	Northbound
NEPA	National Environmental Policy Act
OCTA	Orange County Transportation Authority
PDT	Project Development Team
ROW	Right-of-Way
SB	Southbound
SER	Standard Environmental Reference
SR-22	State Route 22, Garden Grove Freeway
USDOT	United States Department of Transportation
WB	Westbound

Executive Summary

The California Department of Transportation (Caltrans), in cooperation with Orange County Transportation Authority (OCTA), proposes to improve mainline freeway and interchanges on Interstate 405 (I-405) for approximately 16 miles (mi). The proposed project is primarily located in Orange County, California, on I-405 (ORA PM 9.3/24.2; LA PM 0.0/1.2) between State Route (SR)-73 (ORA PM R27.2/R27.8) and Interstate 605 (I-605) (ORA PM 3.5/R1.6); LA PM R0.0/R1.2). Encroachments into Los Angeles County and work on SR-22 (ORA PM R0.7/R3.8 and R0.5/R0.7) are associated with signing and striping to accommodate the transition from the existing to proposed facility. Within the limits of the proposed project, I-405 is a controlled-access highway facility with a fenced right-of-way (ROW), separated by grade from crossing traffic, with vehicular access limited to interchanges. Within the project area, I-405 consists of 8 to 12 mixed-flow general purpose (GP) lanes and two high-occupancy vehicle (HOV) lanes. The purposes of the project can be defined as follows:

- Add capacity and reduce congestion on the GP and HOV lanes along the entire I-405 corridor from SR-73 to I-605;
- Enhance interchange operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations;
- Implement strategies that ensure the earliest project delivery; and
- Enhance safety.

Alternatives: The alternatives considered viable for the I-405 Improvement Project are Alternative 1, Alternative 2, Alternative 3, and the No Build Alternative, with Transportation Systems Management/Traffic Demand Management (TSM/TDM) elements included in all but the No-Build Alternative.

- **Alternative 1 – Add One GP Lane in Each Direction:** Alternative 1 adds a single GP lane in each direction of I-405 from Euclid Street to the I-605 interchange. It will provide a full standard highway cross section, with 12-foot(ft)-wide mainline travel lanes as well as 10-ft-wide shoulders on both left (inside) and right (outside) sides in both directions and will provide continuous access between the HOV and GP lanes. Under Alternative 1, auxiliary lanes will be added at various locations to provide efficient merge and diverge operations. Additionally due to the added travel lanes and shoulder widths proposed on the I-405 mainline, 16 local street overcrossings and a pedestrian bridge over I-405 within the project limits will require complete

replacement because the existing bridge spans are inadequate to accommodate the additional proposed width of the freeway underneath the bridges.

- **Alternative 2 – Add Two GP Lanes in Each Direction:** Alternative 2 adds one GP lane in each direction of I-405 from Euclid Street to the I-605 interchange (as in Alternative 1), plus adds a second GP lane in the northbound (NB) direction from Brookhurst Street to the SR-22/7th Street interchange and a second GP lane in the southbound (SB) direction from the Seal Beach Boulevard on-ramp to Brookhurst Street. It will provide a full standard highway cross section, with 12-ft-wide mainline travel lanes and shoulders on the left and right sides in both directions. Right side (outside) shoulders will be 10-ft-wide, while left side (inside) shoulders will have a maximum width of 10 ft with a provision for a widened left shoulder for HOV enforcement areas under consideration. As with Alternative 1, auxiliary lanes will be added at various locations to provide efficient merge and diverge operations and 16 local street overcrossing and a pedestrian bridge will be replaced.
- **Alternative 3 – Express Facility:** Alternative 3 adds one GP lane in each direction of I-405 from Euclid Street to the I-605 interchange (as in Alternatives 1 and 2), plus adds a tolled express lane in each direction of I-405 from SR-73 to I-605. The tolled express lane will be placed beside the existing HOV lane in each direction. The existing HOV lanes and new toll lanes will be managed jointly as an Express Lane Facility with two lanes in each direction. Alternative 3 will provide a full standard highway cross section, with 12-ft-wide mainline travel lanes and shoulders on the left and right sides in both directions. Right side (outside) shoulders will be 10-ft-wide, while left side (inside) shoulders will have a maximum width of 10 ft with a provision for a widened left shoulder for enforcement areas under consideration. The joint HOV/toll lane Express Lane Facility will be separated from the GP lanes by a 1 to 4 ft buffer. Under Alternative 3, auxiliary lanes will be added at various locations to provide efficient merge and diverge operations and the same bridges identified in Alternatives 1 and 2 will be replaced.
- **No-Build Alternative:** With this alternative, the proposed HOV/Express or GP lanes and other corridor improvements will not be constructed. This alternative avoids the potential environmental and ROW impacts associated with the build alternatives. Except for normal maintenance, no committed improvements are considered as part of the No-Build alternative. Project Baseline assumed under the No Build Alternative includes the future completion of the SR-22 WCC Project (currently in the construction phase) and the Costa Mesa Freeway (SR-55) Improvements, which will

add new lanes to SR-55 between SR-22 on the north and I-405 on the south and improvements on SR-55 between SR-91 on the north and SR-22 on the south.

Regulatory Setting: This report follows the guidelines established by the Federal Highway Administration's (FHWA) publication entitled *Visual Impact Assessment for Highway Projects* (FHWA 1981). The existing visual quality is analyzed based on three criteria: vividness, intactness, and unity. For this report, key viewpoints were identified based on seven Landscape Units: Shopping District, South Residential, Industrial, Residential Connections, Commercial Centers, Northwest Residential, and Open Space-Residential.

The I-405 Project corridor passes through seven municipalities – Costa Mesa, Fountain Valley, Huntington Beach, Westminster, Seal Beach, and Los Alamitos– as well as areas of Orange County, including the unincorporated community of Rossmore. Each entity has established requirements and regulations regarding development within its boundaries. However, because the project is within Caltrans' ROW, these requirements do not apply to the freeway corridor. In addition to the communities that the I-405 Project corridor passes directly through, the cities/communities of Santa Ana, Garden Grove, Long Beach, and Los Angeles can be found near the project corridor.

Key Findings: The overall I-405 Project corridor area has a generally flat and developed character. There is very little open space along the freeway, except at the western end of the project, where a large open space associated with a military installation exists. Land along the corridor is fully developed in residential and commercial properties. Several large commercial centers can be found along the corridor including South Coast Plaza, Bella Terra, and Westminster Mall. Along the freeway there are a large number of existing sound walls that front the residential areas. These limit views into and out of the project corridor.

There is limited existing vegetation within the I-405 Project corridor with the majority of it located either within the existing interchanges or on the embankment at bridge crossings. Some larger trees exist along the mainline between interchanges which help provide scale to the freeway corridor. Vines are planted, either on the freeway or residential side of many of the sound walls which soften the appearance of the walls.

Alternative 1 provides a wider pavement appearance for those viewers within the corridor. It is likely that the existing trees along the mainline of the freeway will be removed, as will the existing vegetation in the interchanges as the existing ramps are reconfigured. Some of the currently vegetated areas can be replanted, especially in the interchanges and limited areas along the mainline; although a number of areas, especially along the mainline, will be lost to planting. The new, replacement bridges will be longer and slightly higher within the view than the current, although they will be proportional to the roadway, and the changes will have minor impacts to the existing views.

Alternatives 2 and 3 have similar impacts as those described under Alternative 1, although the freeway will appear wider under both of these alternatives. The proposed bridge expansion will be the same as under Alternative 1 since the bridges are being built to the ultimate expansion capability.

In addition to the change in lanes common to all alternatives, Alternative 3 includes a direct connector bridge between SR-73 and I-405. This bridge will not be higher than the existing bridges in the interchange, so will not be anticipated to affect the vertical appearance in the interchange. However, it will extend the use of structures farther to the north on I-405 with retaining walls and bridge elements.

All alternatives, with avoidance and minimization measures (e.g. replacement plantings; structural aesthetics detailing, including application of patterns, color, and textures) in place, will likely maintain or slightly decrease the existing visual character/quality within the landscape units. In general, viewer sensitivity will be moderately high to high in most locations due to the sensitivity of the viewer and the number of viewers present, especially within the corridor. Overall visual impacts for all alternatives, based on the key viewpoints, are anticipated to be moderate to moderately low.

Six avoidance and minimization measures have been identified to reduce the project's visual impacts. In addition to these measures, the time frame for application, responsible party for the application of the measure, and possible methods for application are also identified. The proposed measures address the following issues:

- Preserving existing vegetation;
- Applying architectural detailing to the proposed structural aesthetics for walls and bridges;
- Including landscape replacement plantings; and
- Sensitively incorporating stormwater treatment facilities.

1.0. Project Purpose and Need

1.1. PURPOSE OF STUDY

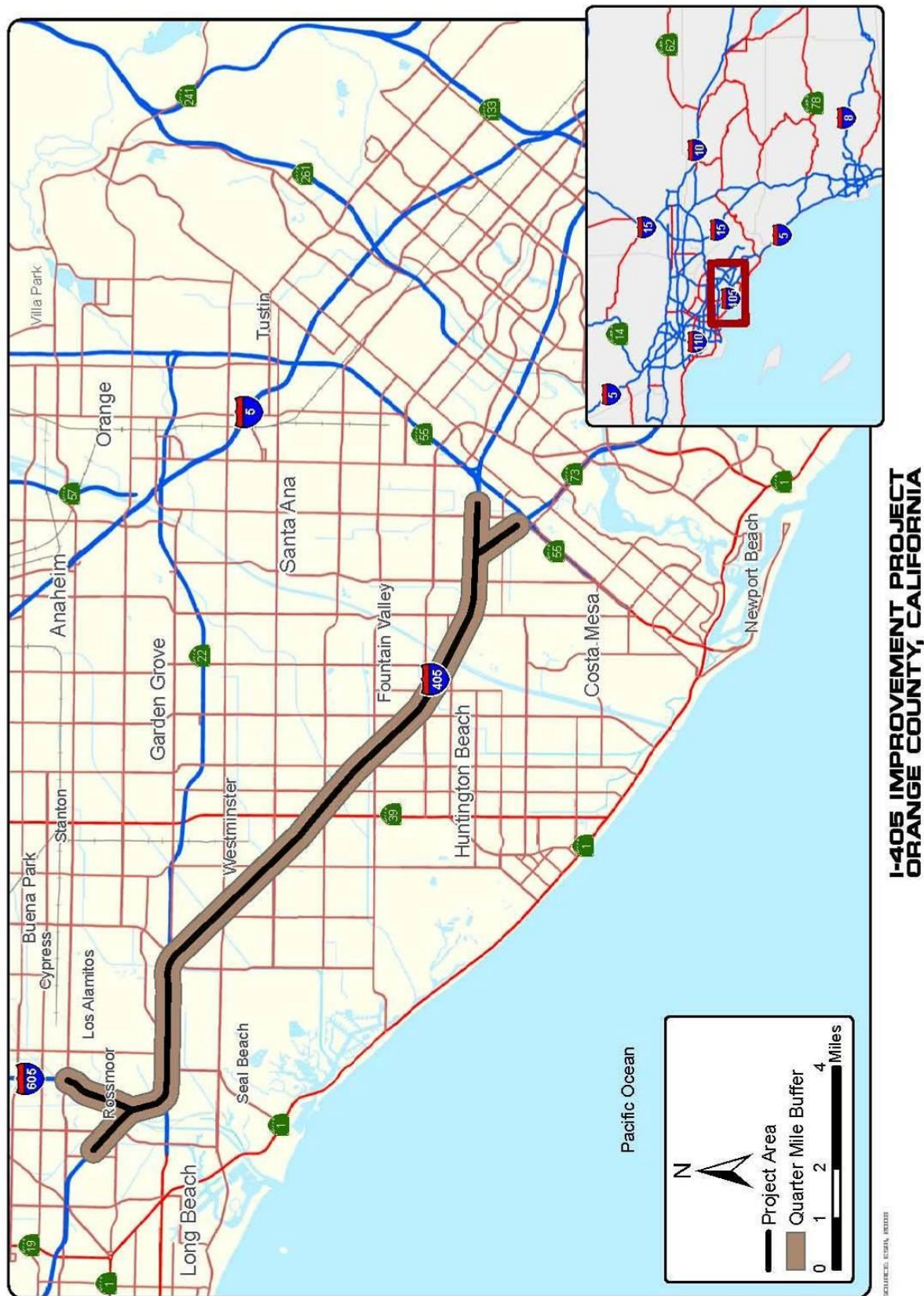
This study assesses the visual impacts and anticipated changes to the visual environment that may be associated with the proposed I-405 Improvement Project. This study also proposes measures to mitigate adverse impacts associated with the project on the adjacent communities. Methodologies for the evaluations described in this report follow those outlined by the Federal Highway Administration's (FHWA) publication entitled *Visual Impact Assessment for Highway Projects* (FHWA, 1981), which is described in more detail in this report.

1.2. PROJECT DESCRIPTION, PURPOSE, AND NEED

This section describes the alternatives that were developed to address the identified needs by accomplishing the defined purpose, while avoiding or minimizing environmental impacts. The alternatives considered viable for the I-405 Improvement Project are Alternative 1, Alternative 2, Alternative 3, and the No Build Alternative, with Transportation Systems Management/Traffic Demand Management (TSM/TDM) elements included in all but the No-Build Alternative. Detailed descriptions of the considered project alternatives are provided later in this section.

The California Department of Transportation (Caltrans), in cooperation with Orange County Transportation Authority (OCTA), proposes to improve mainline freeway and interchanges on Interstate 405 (I-405) for approximately 16 miles (mi). The proposed project is primarily located in Orange County, California, on I-405 (ORA PM 9.3/24.2; LA PM 0.0/1.2) between State Route (SR)-73 (ORA PM R27.2/R27.8) and Interstate 605 (I-605) (ORA PM 3.5/R1.6); LA PM R0.0/R1.2). Encroachments into Los Angeles County and work on SR-22 (ORA PM R0.7/R3.8 and R0.5/R0.7) are associated with signing and striping to accommodate the transition from the existing to proposed facility Figure 1: Project Location Map, illustrates the project location both regionally (see insert map in Figure) and locally, in Orange County. Within the limits of the proposed project, I-405 is a controlled-access highway facility with a fenced ROW, separated by grade from crossing traffic, with vehicular access limited to interchanges. Within the project area, I-405 consists of 8 to 12 mixed-flow general purpose (GP) lanes and two high-occupancy vehicle (HOV) lanes.

Figure 1: Project Location Map



1.2.1. Purpose of the Project

The project “purpose” is a set of objectives the project is intended to meet. The purpose of the proposed action is to:

- Add capacity and reduce congestion on the GP and HOV lanes along the entire I-405 corridor from SR-73 to I-605;
- Enhance interchange operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations;
- Implement strategies that ensure the earliest project delivery; and
- Enhance safety.

In furtherance of the project’s purpose, the following objectives are established:

- Minimize ROW acquisition;
- Ensure financial viability;
- Meet, at a minimum, the commitments of Orange County’s Renewed Measure M transportation sales tax initiative to add capacity to I-405 within the project area;
- Maintain or improve future traffic performance within the corridor; and
- Improve the corridor so as to ensure the facility is maintained as an effective link in the National Strategic Highway Network.

1.2.2. Need for the Project

The project “need” is the transportation deficiency that the project was initiated to address. A brief summary of the need for the proposed project is summarized in the following list of current deficiencies:

- I-405 mainline GP lanes peak period traffic demand exceeds available capacity;
- I-405 mainline HOV lanes peak period traffic demand exceeds available capacity;
- I-405 mainline GP traffic lanes have operational and geometric deficiencies;
- The interchanges along I-405 within the study area have geometric, storage, and operational capacity deficiencies; and

- I-405 currently has limitations in detecting traffic incidents and providing rapid response and clearance (due to lack of capacity and technological infrastructure).

2.0. Project Description

The evaluation of project alternatives included an assessment of cost, traffic level of service (LOS), and other congestion relief performance criteria, environmental impacts, and effectiveness in addressing the project's purpose and need. The potential effectiveness of each alternative to achieve the project purpose and address the project need was based on extensive deliberation by the Project Development Team (PDT), input garnered from various state and federal agencies, and comments received by the public.

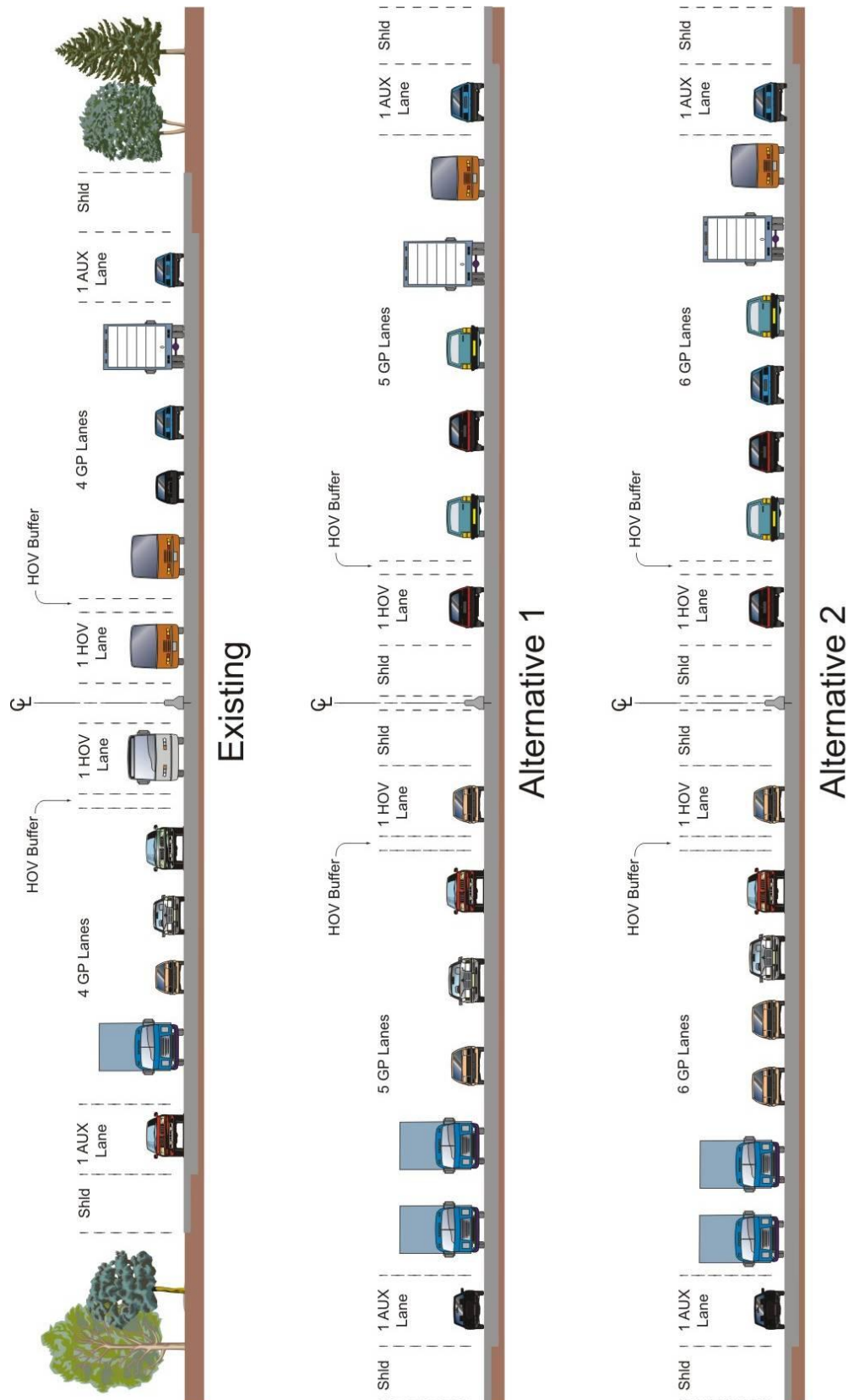
This Visual Impact Assessment (VIA) evaluates the environmental consequences of three build options (Alternatives, 1, 2, and 3), as well as a No Build Alternative. Descriptions of each alternative, including elements common to all alternatives as well as those elements unique to each, are provided below. Additionally, Figure 2 depicts typical sections for each alternative.

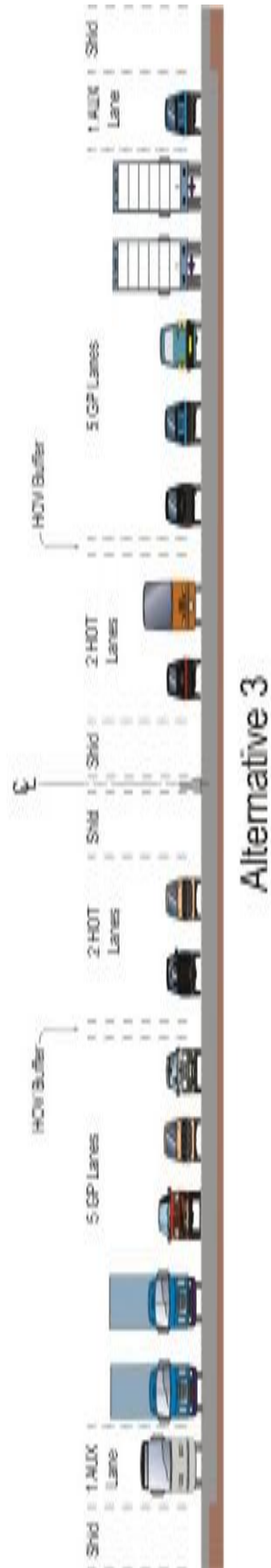
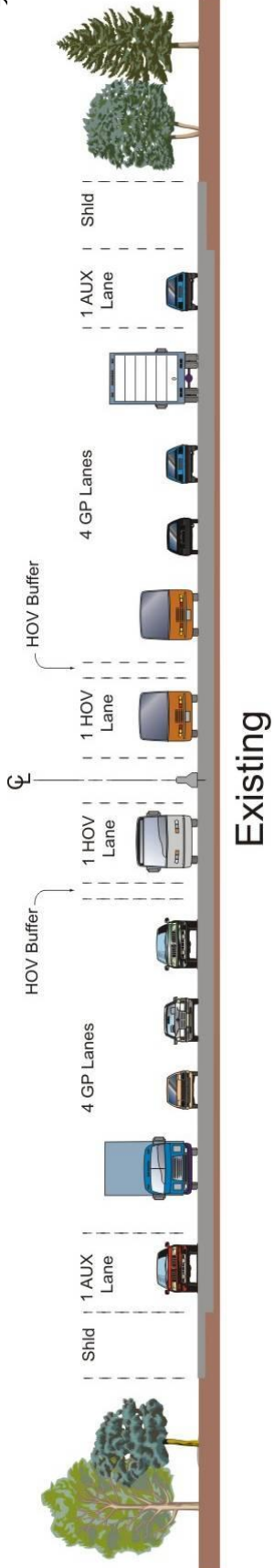
2.1. COMMON DESIGN FEATURES OF THE BUILD ALTERNATIVES

Build Alternatives 1, 2, and 3 will include the following common design features:

- One GP lane will be added in each direction of I-405 from Euclid Street to the I-605 interchange.
- Travel lanes on the I-405 mainline will be 12-ft-wide, and right side shoulders will be 10-ft-wide.
- Improvements at each interchange within the project limits are proposed. Generally, each interchange improvement will have the following standard features:
 - Left- and right-side shoulders on on-/off-ramps;
 - Increased on-ramp storage capacity for ramp meters;
 - Removal of HOV bypass lanes from on-ramps, subject to individual analysis of each on-ramp and approval by the Department and Federal Highway Administration (FHWA);
 - Increased off-ramp storage capacity at local street intersections; and
 - Additional through and turn lanes at intersections of ramps and local streets.
- Each build alternative will include interchange reconfigurations at Euclid Street, Ellis Avenue, Brookhurst Street, Magnolia Street, Warner Avenue, Beach Boulevard, and Westminster Boulevard.

Figure 2: Typical Roadway Cross Section





- The build alternatives will provide appropriate pedestrian facilities on overcrossings and along arterials within interchanges.
- Maintenance vehicle pullouts (MVP) will be included in various locations under each build alternative.
- Each build alternative will require relocation of existing utilities (e.g., electrical lines, irrigation water supply lines, underground natural gas pipelines, telecommunication lines) currently present within the I-405 ROW limits.
- The build alternatives will require modification of existing stormwater drainage channels and construction of new drainage and/or retention facilities necessary to accommodate project construction and provide sufficient drainage capacity to accommodate future runoff volumes generated with the built project in place.
- Each build alternative will add water quality Best Management Practices (BMPs).
- Landscaping and hardscaping elements will be included with each build alternative.
- Due to ROW constraints and existing non-standard features, design exceptions are being requested as a part of the proposed project.
- Although TSM and TDM measures alone do not satisfy the purpose and need of the project, the following TSM and TDM measures may be incorporated into each of the build alternatives for the proposed project:
 - Real Time Adaptive Ramp Metering (RTARM) and camera systems will be provided on on-ramps;
 - At locations of interchange improvements, traffic signals will be interconnected and coordinated, where possible, to enhance traffic operations;
 - Pedestrian access improvements will be added wherever possible;
 - Additional Park & Ride/ Intermodal facilities will be added at various locations to integrate with Bus Rapid Transit (BRT), express bus, Go Local Metrolink Connectors, community circulators, and local bus;
 - At all existing locations, Park & Ride facilities will be improved, including adding way-finding signs on freeways and arterials, information kiosks, and improved safety features;
 - Auxiliary lanes will be provided in various locations;

- On- and off-ramps will be designed to limit impacts to non-motorized travel, preserving access to bike lanes and trails such as the Santa Ana River bike trail; and
- Intelligent transportation systems (ITS) elements, where needed and feasible, will be provided, including the following: fiber-optic communication systems, changeable message signs, and vehicle detection systems.

Additionally, due to the added travel lanes and shoulder widths proposed on the I-405 mainline, 16 local street overcrossings and a pedestrian bridge over I-405 within the project limits will require complete replacement because the existing bridge spans are inadequate to accommodate the additional proposed width of the freeway underneath the bridges. Each of the replacement (new) local street overcrossings will be designed to accommodate the ultimate cross-section width and maximum number of travel lanes planned for each facility by the Orange County Master Plan of Arterial Highways (MPAH). Table 1.3.1 identifies the bridges being replaced or widened as part of the project.

The I-405/Seal Beach Boulevard overcrossing and various freeway-to-freeway connector structures at the I-405/SR-22 and I-405/I-605 interchanges will be replaced as part of a separate project (the SR-22 West County Connectors [WCC] Project), which is currently in the construction phase. The new (replacement) Seal Beach Boulevard overcrossing and freeway-to-freeway connectors to be constructed by the SR-22 WCC Project have been designed to consider the future widening of I-405 proposed by Alternatives 1, 2, and 3 of the project.

Two railroad overheads will be modified and extended as part of the proposed project. The freeway passes over the Union Pacific Railroad (UPRR) on the Bolsa Overhead (Bridge No. 55-269 at PM 17.21) and the U.S. Navy Railroad on the Navy Overhead (Bridge No. 55-272 at PM 18.36). Both railroad overheads will be widened, required railroad clearances will be maintained, and a crash cushion will be installed at the UPRR overhead.

At various locations, new or reconstructed sound walls and retaining walls will be built as part of the alternatives. In some locations, replacement walls will be constructed in areas where sections of existing walls must be modified or removed to accommodate the proposed project. Tables listing the anticipated sound and retaining walls by alternative can be found in Appendix 'B' of this report. Table 11-2 A through D lists the anticipated sound walls and Table 11-1 A and B identifies the major retaining walls (those walls over 5 ft in height) by alternatives. Smaller retaining walls are also anticipated along the corridor. These will be smaller in height (less than 5 feet) and the locations for these will be determined during final design. In some instances retaining walls may be combined with sound walls.

**Table 1.3-1
Replacement Bridges Per Alternative**

Bridge/Location	Alternative 1	Alternative 2	Alternative 3
405-73 HOV Connector Separation	NEW	NEW	NEW
Fairview Road Overcrossing	REPLACE	REPLACE	REPLACE
Harbor Blvd. Undercrossing	WIDEN	WIDEN	WIDEN
Harbor Blvd On-Ramp Undercrossing	NEW	NEW	NEW
Santa Ana River	WIDEN	WIDEN	WIDEN
Euclid Street On-Ramp Connection Bridge	NEW	NEW	NEW
Euclid Street On-Ramp Connector	NEW	NEW	NEW
Ward Street Overcrossing	REPLACE	REPLACE	REPLACE
Talbert Avenue Overcrossing	REPLACE	REPLACE	REPLACE
Brookhurst Street Overcrossing	REPLACE	REPLACE	REPLACE
Slater Avenue Overcrossing	REPLACE	REPLACE	REPLACE
Bushard Street Overcrossing	REPLACE	REPLACE	REPLACE
Warner Avenue Overcrossing	REPLACE	REPLACE	REPLACE
Warner Avenue On-Ramp Connector Overcrossing	NEW	NEW	NEW
Magnolia Street On-Ramp Connector Overcrossing	NEW	NEW	NEW
Magnolia Street Overcrossing	REPLACE	REPLACE	REPLACE
Heil Avenue Pedestrian Overcrossing	REPLACE	REPLACE	REPLACE
East Garden Grove Channel NB	WIDEN	WIDEN	WIDEN
East Garden Grove Channel sB	WIDEN	WIDEN	WIDEN
Newland Street Overcrossing	REPLACE	REPLACE	REPLACE
Edinger Avenue Overcrossing	REPLACE	REPLACE	REPLACE
Route WB 39/SB 405 Ramp Connector	NEW	NEW	NEW
Route EB 39/SB 405 Ramp Connector	NEW	NEW	NEW
McFadden Avenue Overcrossing	REPLACE	REPLACE	REPLACE
Bolsa Overhead**	WIDEN	WIDEN	WIDEN
Bolsa Avenue Overcrossing	REPLACE	REPLACE	REPLACE
Golden West Street Overcrossing	REPLACE	REPLACE	REPLACE
Navy Overhead**	WIDEN	WIDEN	WIDEN
Edwards Street Overcrossing	REPLACE	REPLACE	REPLACE
Westminster Avenue Overcrossing	REPLACE	REPLACE	REPLACE
Springdale Street Overcrossing	REPLACE	REPLACE	REPLACE
Bolsa Chica Road Overcrossing	REPLACE	REPLACE	REPLACE
** Indicates a Railroad bridge crossing over the highway. New = New Structure Replace = Replacement Structure Widen = Widen existing structure to the outside			

Landscape areas within the existing corridor will be reduced in each alternative. The purchase of additional ROW will be limited, therefore there will be only be small areas added to the existing total ROW corridor area. However the existing impervious area will increase for each alternative. Therefore the net effect will be an anticipated reduction in the areas of landscaping within the ROW. This area will come out of the existing landscape areas along the freeway mainline and within interchange areas.

The anticipated total areas of impervious and affected existing landscape areas are summarized in Table 1.3-2

. The areas shown in the table are indicative of the core areas of the project, from SR-73 to the I-405/I-605 split. Project elements for the portions outside of this area are associated with re-striping of existing roadways, and do not have any associated widenings, bridge replacements, or other proposed work that will affect the existing landscape.

Table 1.3-2
Anticipated Effects to Landscape areas by Alternative

	TOTAL AREA WITHIN ROW (Acres)	IMPERVIOUS SURFACES				TOTAL AREA AVAILABLE FOR POTENTIAL LANDSCAPE (Acre) ²
		EXISTING (Acre)	ADDITION. PROPOSED (Acre)	TOTAL (Acre)	% CHANGE ³	
Alternative 1	658	379	86	465	18%	193
Alternative 2	658	379	99	478	21%	180
Alternative 3 ¹	664	468	104	569	22%	95
<ol style="list-style-type: none"> Existing areas in Alternative 3 is larger than the other two alternatives because it includes areas within the SR-73 Interchange not included in Alternatives 1 and 2. Total Area Available for Potential Landscape equals the Total Area within the ROW minus the total area of impervious surfaces. It is anticipated that all of this area will be disturbed by construction activities. This figure represents both the percent change to the impervious surface as well as the landscape areas, since one replaces the other. 						

2.2. UNIQUE FEATURES OF BUILD ALTERNATIVES

Alternative 1 – Add One GP Lane in Each Direction

Alternative 1 will add a single GP lane in each direction of I-405 from Euclid Street to the I-605 interchange. Figures 3 and 4 display the proposed I-405 lane configurations associated with the proposed build Alternatives. Figure 5 is an aerial perspective (also called a bird's-eye view) of

the proposed improvements in the vicinity of the Springdale Bridge. It shows the general proposed improvements for the corridor under Alternative 1 as compared to the existing condition. Alternative 1 will provide a full standard highway cross section, with 12-foot[ft]-wide mainline travel lanes as well as 10-ft-wide shoulders on both left (inside) and right (outside) sides in both directions.

Alternative 1 will provide continuous access between the HOV and GP lanes. On July 31, 2007, the Department approved a PSR for a separate project (EA 0J440K) to provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded; however, the proposed continuous access will be implemented as part of Alternative 1 of the proposed project for the segment of I-405 between Euclid Street and I-605.

Under Alternative 1, auxiliary lanes will be added at various locations to provide efficient merge and diverge operations. In the northbound (NB) direction, the existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp will be retained. Additional NB auxiliary lanes will be provided at the following locations:

- At the approach to the Euclid Street/Ellis Avenue off-ramp; and
- From the Seal Beach Boulevard on-ramp to the westbound SR-22/7th Street off-ramp.

In the SB direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp will not be retained. The existing auxiliary lane from the SR-22/7th Street on-ramp to Seal Beach Boulevard will be retained, as will the existing auxiliary lane from the Harbor Boulevard on-ramp to the Fairview off-ramp. An additional auxiliary lane will be included between the Euclid/Ellis on-ramp and the Harbor Boulevard off-ramp.

Descriptions of proposed improvements included in Alternative 1 and shared by all alternatives are provided in Section 1.3.1 - Common Design Features of the Build Alternatives.

In the northern segment of the project area where SR-22 and I-405 overlap, Alternative 1 will result in a freeway with nine through lanes in each direction. For traffic in the left lanes, including the HOV lanes, signage will be provided far enough upstream to accommodate the required number of lane changes to properly exit the freeway.

Alternative 1 is considered a viable project alternative because it will achieve the project's purpose and need by accomplishing the following:

- Provision of additional capacity in the form of a continuous additional lane through the entire project area;

Figure 3: Lane Configurations, Northbound

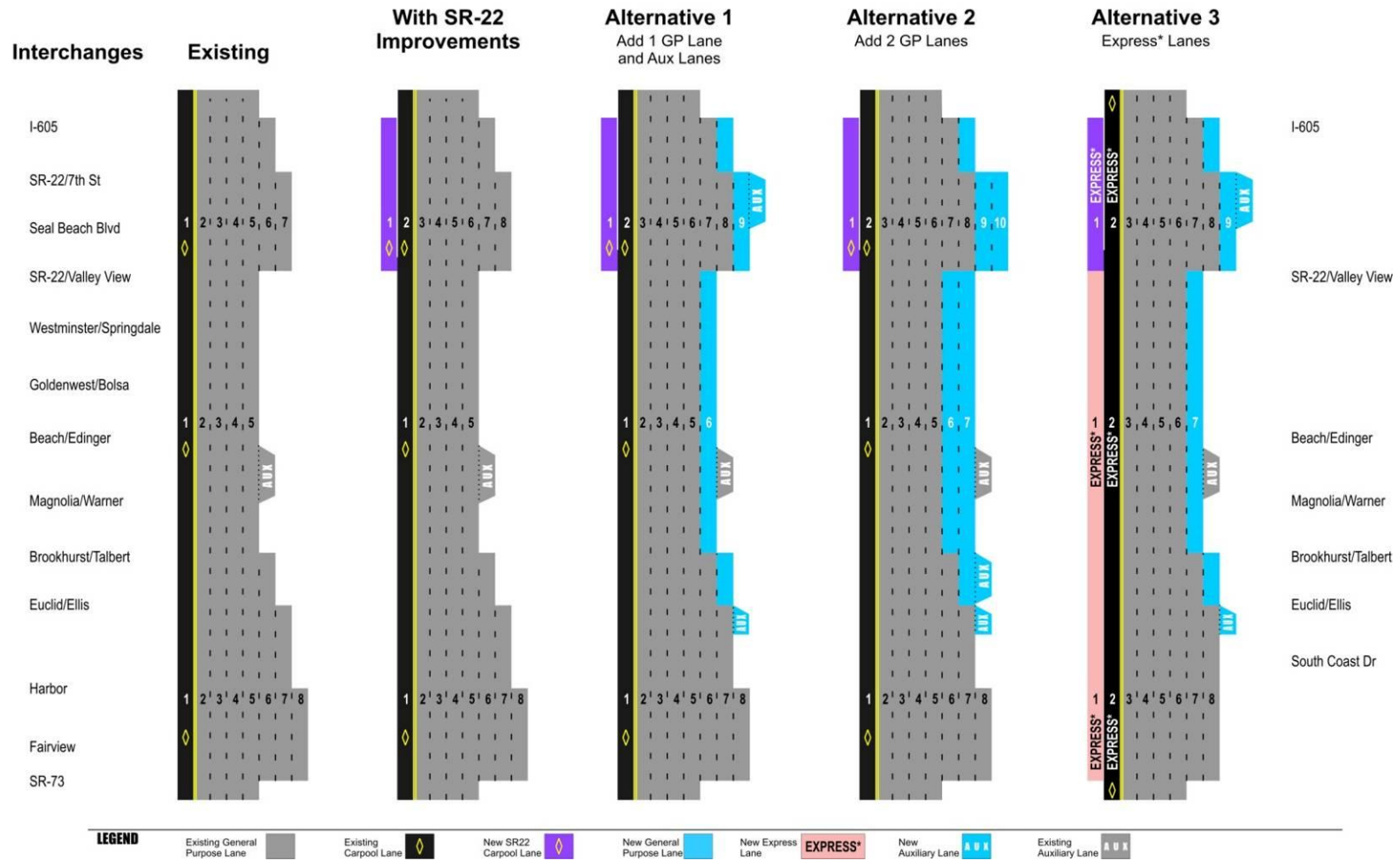


Figure 4: Lane Configurations, Southbound

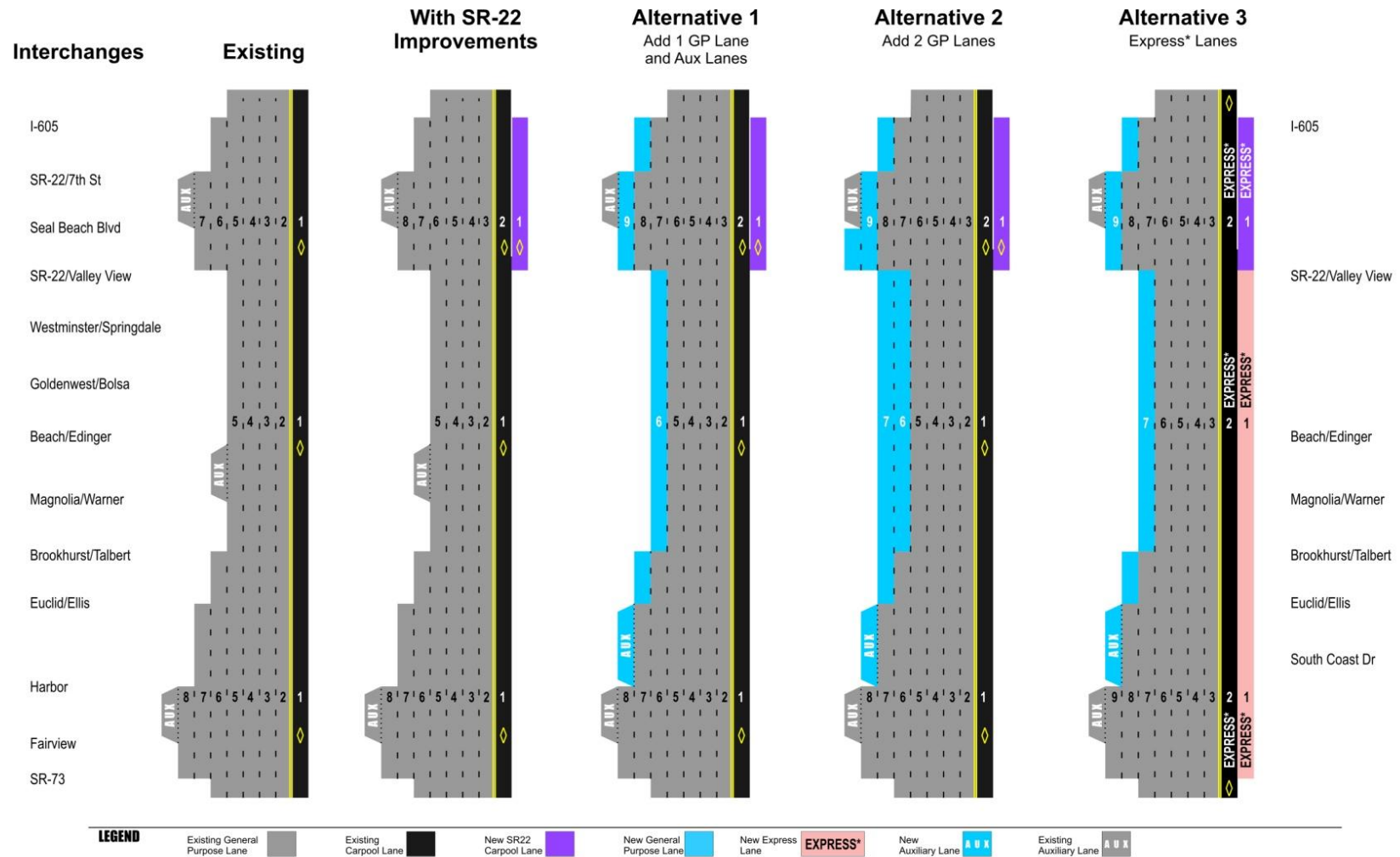


Figure 5: Bird's-eye View of Alternative 1 Improvements

Existing view (top) and proposed Alternative 1 view (bottom) at the Springdale Street Overcrossing. Among other improvements, Alternative 1 replaces the bridge and adds one general purpose lane in both directions.



- Provision of operational improvements via redesign of interchanges and provision of additional auxiliary lanes;
- Addition of substantial vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Reduction of congestion compared to future conditions under the No Build Alternative.

Alternative 2 – Add Two GP Lanes in Each Direction

Alternative 2 will add one GP lane in each direction of I-405 from Euclid Street to the I-605 interchange (as in Alternative 1), plus add a second GP lane in the NB direction from Brookhurst Street to the SR-22/7th Street interchange and a second GP lane in the SB direction from the Seal Beach Boulevard on-ramp to Brookhurst Street. Figures 3 and 4 displays the I-405 lane configurations associated with proposed build Alternative 2, while Figure 6 shows a bird's-eye view of the proposed improvements under Alternative 2 in the vicinity of the Springdale Bridge.

Alternative 2 will provide continuous access between the HOV and GP lanes. On July 31, 2007, the Department approved a PSR for a separate project (EA 0J440K) to provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded; however, the proposed continuous access will be implemented as part of Alternative 2 of the proposed project for the segment of I-405 between Euclid Street and I-605.

Under Alternative 2, auxiliary lanes will be added at various locations to provide efficient merge and diverge operations. In the NB direction, the existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp will be retained. A NB auxiliary lane will be provided at the northerly approach to the Euclid/Ellis off-ramp, as well as between the Euclid/Ellis on-ramp and the Brookhurst Street/Magnolia Street off-ramp.

In the SB direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp will not be retained. The existing auxiliary lane from the SR-22/7th Street on-ramp to Seal Beach Boulevard will be retained, as will the existing auxiliary lane from the Harbor Boulevard on-ramp to the Fairview off-ramp. An additional auxiliary lane will be included between the Euclid/Ellis on-ramp and the Harbor Boulevard off-ramp. Descriptions of proposed improvements included in Alternative 2 and shared by all alternatives are provided in Section 1.3.1 - Common Design Features of the Build Alternatives.

In the northern section of the project area where SR-22 and I-405 overlap, Alternative 2 will result in a freeway with 9-10 through lanes in each direction. Signage will be provided far

enough upstream to accommodate the required number of lane changes to exit the freeway for traffic in the left lanes, including the HOV lanes.

Alternative 2 is considered a viable project alternative because it will achieve the project's purpose and need by accomplishing the following:

- Enhancement of capacity in the form of two continuous additional lanes through the project area;
- Improvement of highway operations via redesign of interchanges and addition of new auxiliary lanes;
- Addition of substantial vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Relief of congestion compared to future conditions under the No Build Alternative.

Alternative 3 – Express Facility

Alternative 3 will add one GP lane in each direction of I-405 from Euclid Street to the I-605 interchange (as in Alternatives 1 and 2), plus add a tolled express lane in each direction of I-405 from SR-73 to I-605. The tolled express lane will be placed beside the existing HOV lane in each direction. The existing HOV lanes and new toll lanes will be managed jointly as an Express Lane Facility with two lanes in each direction. Figure 3 and 4 display the proposed I-405 lane configurations associated with proposed build Alternative 3. Figure 7 is a bird's-eye view of the proposed improvements in the vicinity of the Springdale Bridge. It shows the general proposed improvements for the corridor under Alternative 3 as compared to the existing condition.

Operation of the Express Lane Facility will provide preferential toll treatment for HOVs. All vehicles in the express lanes, tolled or free, will be able to use both lanes of the Express Lane Facility. Tolls for use of the Express Lane Facility will be collected exclusively by electronic media. Signing related to the Express Lane Facility will provide both toll and access information to motorists before entering each segment of the Express Lane Facility.

Alternative 3 will provide a full standard highway cross section, with 12-ft-wide mainline travel lanes and shoulders on the left and right sides in both directions. Right side (outside) shoulders will be 10-ft-wide, while left side (inside) shoulders will have a maximum width of 10 ft with a provision for a widened left shoulder for enforcement areas under consideration. The joint HOV/toll lane Express Lane Facility will be separated from the GP lanes by a 1 to 4 ft buffer.

Figure 6: Bird's-eye View of Alternative 2 Improvements

Existing view (top) and proposed Alternative 2 view (bottom) at the Springdale Street Overcrossing. Among other improvements, Alternative 2 replaces the bridge and adds two general purpose lanes in both directions.



Figure 7: Bird's-eye View of Alternative 3 Improvements

Existing view (top) and proposed Alternative 3 view (bottom) at the Springdale Street Overcrossing. Among other improvements, Alternative 3 replaces the bridge and adds one general purpose lane and one express lane in both directions.



Under Alternative 3, auxiliary lanes will be added at various locations to provide efficient merge and diverge operations. The existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp will be retained. Additional NB auxiliary lanes will be provided at the northerly approach to the Euclid/Ellis off-ramp, and between the Seal Beach Boulevard on-ramp and the SR-22/7th Street off-ramp.

In the SB direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp will not be retained. The existing auxiliary lane from the SR-22/7th Street on-ramp to Seal Beach Boulevard will be retained, as will the existing auxiliary lane from the Harbor Boulevard on-ramp to the Fairview off-ramp. An additional auxiliary lane will be included between the Euclid/Ellis on-ramp and the Harbor Boulevard off-ramp.

To accommodate the Express Lane Facility on I-405, there will be transition areas at both ends of the project to match the existing HOV and GP lane designations north and south of the project limits. Transition areas will include portions of I-605 and SR-73, as well as portions of I-405 north of I-605 and south of SR-73. A transition area will also be required on SR-22 east of I-405.

To facilitate access to the Express Lane Facility, the following seven access points are currently under consideration:

- I-405 south of the SR-73 junction, by an at-grade access;
- SR-73, by either an at-grade access or a direct connector;
- I-405 in the Brookhurst Street/Magnolia Street area, by an at-grade access;
- I-405 in the Goldenwest Street/Westminster Boulevard area, by an at-grade access;
- SR-22 east of the I-405 junction, by a direct connector;
- I-605 north of the I-405 junction, by a direct connector; and
- I-405 north of the I-605 junction, by at-grade access.

At the Brookhurst Street/Magnolia Street and Goldenwest Street/Westminster Boulevard access locations, access to the Express Lane Facility will be at-grade and similar to ingress/egress treatments used on at-grade buffer-separated HOV facilities.

Access to the Express Lane Facility from SR-22 and I-605 will be via the HOV direct connectors to be constructed as part of the SR-22 WCC Project. Under Alternative 3, the WCC Project HOV direct connectors will become part of the I-405 Express Lane Facility, and use of the HOV lane direct connectors will become tolled for vehicles not meeting the HOV occupancy requirement.

Descriptions of proposed improvements included in Alternative 3 and shared by all alternatives are provided in Section 1.3.1 - Common Design Features of the Build Alternatives.

In the northern section of the project area where SR-22 and I-405 overlap, Alternative 3 will result in a freeway with nine through lanes in each direction. For traffic in the left lanes, including the HOV lanes, to properly exit the freeway, signage will be provided far enough upstream to accommodate the required number of lane changes to exit the freeway.

Alternative 3 is considered a viable project alternative because it will achieve the project's purpose and need by accomplishing the following:

- Addition of capacity in the form of two new continuous lanes through the project area;
- Provision of operational improvements through redesign of interchanges and addition of auxiliary lanes;
- Addition of considerable vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Reduction of congestion compared to future conditions under the No Build Alternative.

No Build (No Action) Alternative

The No Build Alternative provides a “baseline” for comparing impacts associated with the build alternatives because environmental review must consider the effects of not implementing the proposed project. The Project Baseline conditions under the No Build Alternative will provide no additional lanes or interchange improvements to the I-405 corridor. The project area will continue to operate with no additional improvements and will not achieve the project's stated purpose and need

Compared to the existing condition, as recorded in the Notice of Preparation (NOP) (issued August 31, 2009) and the Notice of Intent (NOI) (issued September 1, 2009), the future Project Baseline assumed under the No Build Alternative includes the future completion of the following two projects:

- The SR-22 WCC Project (currently in the construction phase), which has received environmental document approval and is proceeding through the design and construction phases; and

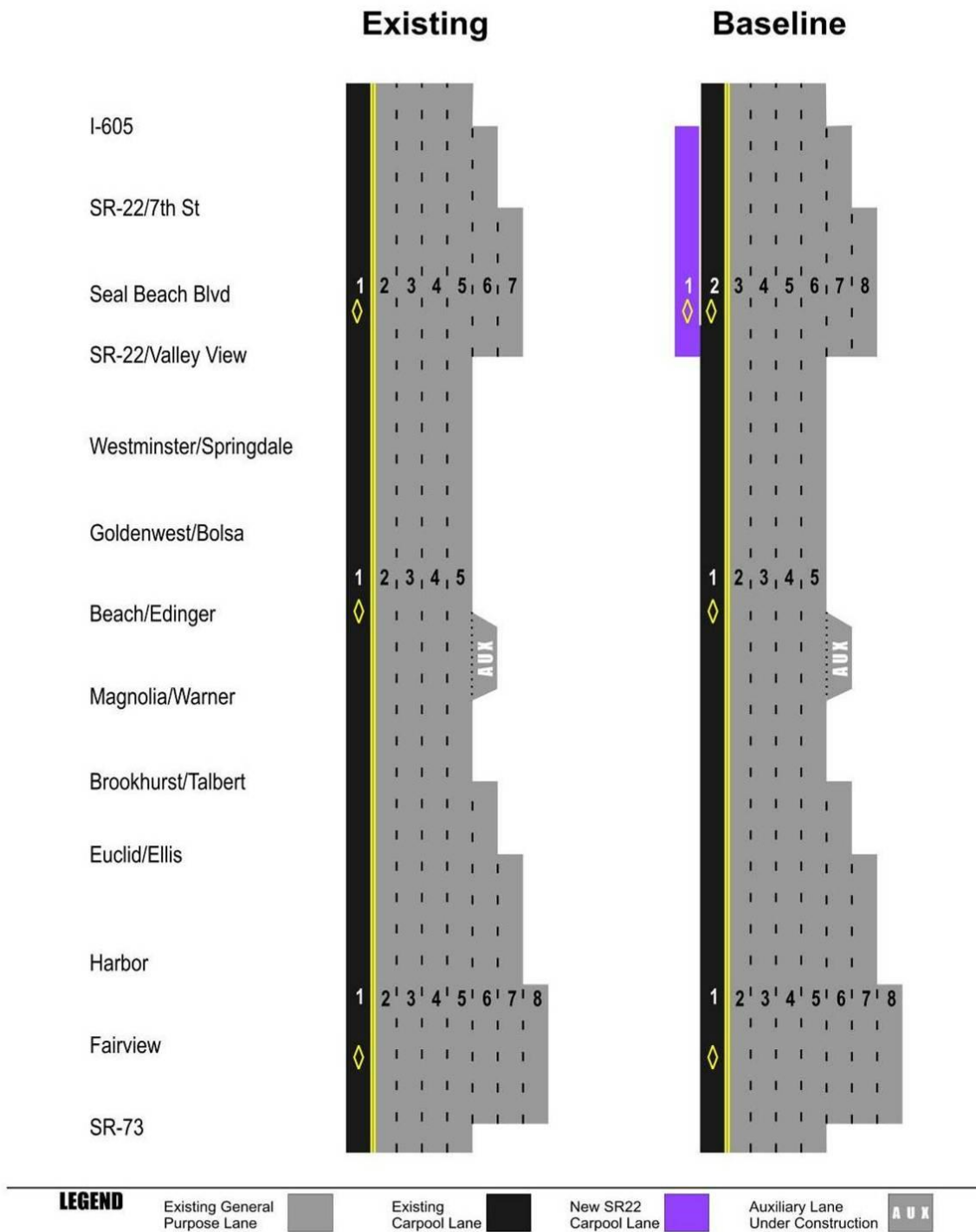
- Project EA 0J440K, which will provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded.

Figure 8 displays the I-405 lane configuration under existing conditions and future Project Baseline conditions associated with the No Build Alternative.

The following improvements in the project area are to be constructed by the SR-22 WCC Project and are considered part of the future Project Baseline conditions:

- An additional HOV lane in each direction between SR-22 East and I-605;
- HOV lane direct connectors at the I-405/SR-22 East and I-405/I-605 interchanges;
- Relocation of the existing off-ramp to SB Bolsa Chica Road, which currently exits from the eastbound (EB) SR-22 branch connector, to exit from the I-405 SB mainline;
- Replacement of the Seal Beach Boulevard overcrossing;
- Replacement of the SR-22 separation bridge carrying westbound SR-22 over I-405 near 7th Street;
- Replacement of the SR-22 separation bridge carrying EB SR-22 over I-405 near Valley View Street;
- New bridge carrying the planned I-405/SR-22 HOV direct connectors over I-405 NB; and
- New bridge carrying the planned I-405/I-605 HOV direct connector over I-405 NB.

**Figure 8: I-405 Lane Configurations –
Existing and Future Project Baseline**



3.0. Assessment Method

The National Environmental Policy Act (NEPA) of 1969 and Council on Environmental Quality (CEQ) regulations to implement NEPA both discuss visual impacts under the heading of aesthetics. These regulations identify aesthetics as one of the elements or factors in the human environment that must be considered in determining the effects of a project. Further, Title 23, USC 109(h) cites “aesthetic values” as a matter that must be fully considered in developing a project. In addition to the Federal guidelines and requirements, the State of California, through the California Environmental Quality Act (CEQA), establishes that it is the policy of the State to take actions to provide the people of the state “with...enjoyment of aesthetic, natural, scenic, and historic environmental qualities.”¹ To address CEQA requirements, Caltrans has developed the Standard Environmental Reference (SER) which provides information on the approach the Department uses to identify visual and aesthetic issues that may result from transportation projects.

This visual assessment was prepared consistent with the methodologies established by FHWA’s publication entitled *Visual Impact Assessment for Highway Projects* (FHWA, 1981). This methodology divides the views into landscape or character units that have distinct, but not necessarily homogenous, visual character. Typical views, called key viewpoints (or key viewpoints), are selected for each unit to represent the views to/from the project. The view of the motorist is also considered as a separate character unit.

Existing visual quality from the viewpoints is judged by three criteria: vividness, intactness, and unity. Descriptions for the three criteria are:

- Vividness: the memorability of the landscape components as they combine to form striking or distinctive patterns.
- Intactness: The integrity of visual order in the view and its freedom from visual encroachment.
- Unity: the visual coherence and composition of the landscape viewed to form a harmonious visual pattern.

These criteria provide a method for describing the form, line, color, and texture of the components found within a view. As in all things aesthetic, “beauty is in the eye of the beholder” and, therefore, there is a subjective component to this or any visual analysis evaluation.

¹ California Public Resources Code Section 21001(b). 2003. http://ceres.ca.gov/topic/env_law/ceqa/stat2/index.html

However, as outlined in the FHWA methods, the use of these descriptors allows for a basis for understanding the evaluator's rationale behind a visual quality determination.

To address the requirements identified in the FHWA methodology, the following seven steps were performed to assess the visual impacts of the proposed project:

- Define the project setting and viewshed
- Identify the regulatory setting of the project area
- Identify key viewpoints for visual assessment
- Analyze existing visual resources and viewer response
- Depict the visual appearance of project alternatives
- Assess the visual impacts of the project alternatives
- Propose methods to alleviate adverse visual impacts

It is important to note that visual character terms are descriptive and non-evaluative, meaning that they are based on defined attributes that are neither good nor bad by themselves. Changes in visual character cannot be described as having good or bad attributes until compared with viewer responses to the change.

3.1. PROJECT SITE VISITS & INFORMATION GATHERING

Interpretation of existing visual character and land use was based on field visits conducted during the fall of 2009. Aerial photography provided base information for the existing roadways. In addition, research on the regulatory setting was conducted via online searches of the city, county, and Caltrans websites.

4.0. Visual Environment of the Project

4.1. PROJECT SETTING

A regional landscape defines those elements of the natural and built environment that together form a unique visual identity of a place or corridor. This regional landscape establishes the general visual environment of the project, but the specific visual environment upon which this assessment is focused is determined by defining the landscape units and project viewshed, which are discussed below in greater depth.

The regional landscape of the project corridor is typical to that portion of Southern California through which the corridor crosses. The terrain is relatively flat with nearly all available land already developed. A notable exception is in the western portions of the corridor where significant undeveloped land associated with military facilities still exists. Along the corridor the development patterns include notable commercial nodes, such as South Coast Plaza in Costa Mesa, Bella Terra in Huntington Beach, and the Westminster Mall in Westminster. Interspersed with the commercial development are large areas of residential homes, both single and multi-family. From the I-405 freeway, these residential areas are usually screened by a sound wall near the edge of the freeway ROW.

4.2. REGULATORY SETTING

In addition to the assessment methods outlined by FHWA and described in the previous section, there are a number of other state and local regulations and/or codes that might influence the assessment of the visual character. Local regulations and codes, while not having the force of law on a state project, provide insight into a community's concern with the visual environment and the emphasis they place on aesthetics and landscaping within their community. The summary below identifies applicable state and local regulations and codes.

4.2.1. Caltrans

Master Plan of Freeway and Transit Corridor Enhancements: Together with OCTA, Caltrans developed this Master Plan for the corridor in 1995. In this plan, themes and conceptual applications are presented. These are intended to inform and assist designers in the development of landscape and aesthetic designs for projects within the I-405 and other corridors within Orange County.

Context Sensitive Solutions: Context Sensitive Solutions, or CSS, is a policy established by Caltrans as an “approach to plan, design, construct, maintain, and operate its transportation

system.” CSS is an approach to transportation projects that places preservation of historic, aesthetic, scenic, natural environment and other community values on an equal basis with transportation safety, mobility, economics, and maintenance. The intended result of employing CSS design on projects is to create transportation projects that are in harmony with a community’s values and objectives by allowing community input into the design process.

Scenic Routes: There currently are no identified scenic routes, or potentially listed scenic routes within or adjacent to the project area.

Caltrans Landscape Regulations: Caltrans has established a plant selection and set-back guide for all new landscape plantings. In most instances, these are more limiting than previous requirements. The primary concern of the requirements is the safety of maintenance workers and travelers on the roadway. Under the revised guidelines, new plantings may be restricted in their locations, and it cannot be assumed that new plantings will be in-kind and in-place of the existing plantings. In addition, an increase in disease and insect vectors has limited the species that can be replanted.

Another potential limitation to new landscaping is the new water quality requirements as a result of additional paving in the corridor. Some of the methods typically employed to improve the quality of the water running off of adjacent project pavement include detention ponds that allow pollutants to settle out, and bioswales, i.e. grassed ditches, that use plantings along the swale to filter out the impurities. In both of these treatments, woody landscape plantings, including shrubs and groundcovers, are not allowed. In the case of the basin, this is because the basin must be cleaned out to remove sediment. In the case of the bioswale, grass is needed to act as the filter. Therefore the placement of these elements within a corridor can greatly restrict landscape plantings at any one particular location.

4.2.2. Orange County

As part of the County’s General Plan, Orange County has developed a Scenic Highway Plan. The county divides their scenic highways into two categories: the Viewscape Corridor (Type 1), which typically traverses a corridor with unusual scenic and aesthetic value; or the Landscape Corridor (Type 2), which is typically found in developed or developing areas where special treatment has been designated.

Within the project area, no portions of the interstates or freeways, including the SR-22, I-405, and I-605 have been designated as scenic by Orange County. In addition no cross-streets that cross over or under the interstates or freeways are identified as scenic highways/roadways either.

The community of Rossmoor is an unincorporated neighborhood of approximately 10,000 residents that is located between the cities of Seal Beach and Los Alamitos in the general area of the I-405/I-605 interchange. As an unincorporated community, it falls within the jurisdiction of Orange County. The community has a Home Owners Association that “preserves, protects, and enhances” the quality of life within the community. One of the distinctive design elements of the community is its red brick wall that separates it from the adjacent neighborhoods.

4.2.3. City of Costa Mesa

The City of Costa Mesa has established a Streetscape and Median Development Standards that present the vision for the future of Costa Mesa streetscapes. The standards establish the criteria for the selection of plants, site furnishings, medians and/or other improvements located within the public ROW.

Within the project area, the Development Standards call for a secondary city entry in the medians of Harbor Boulevard, Fairview Road and Bristol Street at their intersection with the 405 Freeway. Primary entries are to receive a City entry monument sign, while secondary entrances have standard reflective metal signage.

In addition, the City’s Zoning Code includes a chapter on Landscaping Standards that, among other things, seeks to:

- enhance the aesthetic appearance of the City;
- address water conservation measures through landscape and irrigation design;
- encourage sustainable landscapes;
- encourage landscape design that protects the public health, safety and welfare;
- deter graffiti on walls and break up continuous asphalt or concrete surfaces; and
- encourage the use of the wide range of drought tolerant landscape materials and low water flow irrigation.

4.2.4. City of Fountain Valley

The City of Fountain Valley does not have specific aesthetic or landscape ordinances. The Municipal Code does include limitation on the removal of trees within the ROW and on the selection of tree and other landscaping within the ROW.

4.2.5. City of Huntington Beach

The City of Huntington Beach has several documents on record that identify the City's Urban Design and Aesthetic considerations. The first of these, included as part of the City's General Plan, is called the Urban Design Element, which is an optional chapter to the General Plan. In this the City identifies the development patterns and "districts" that make up the community. Entry nodes to the City are also identified, including the Edinger Avenue/I-405/Beach Boulevard Interchanges, the Warner Avenue/I-405 Interchange, and the Golden West Street area, south of I-405. The Goal for the Urban Design portion of the General Plan is to "enhance the visual image of the City of Huntington Beach" with objectives and supporting policies established for each of the City's districts.

In addition to the Urban Design Element of the General Plan, the City has developed a set of Urban Design Guidelines that is consistent with the General Plan while providing greater direction on implementing the goals, objectives and policies of the plan.

Urban Design Guidelines promote high quality development that will²:

- Implement goals, objectives and policies of the General Plan for the orderly development of the City.
- Enhance the City's unique identity and character and contribute to a positive City image.
- Stimulate investment and strengthen the economic vitality of the City.
- Contribute to a positive physical image and identity of the City.
- Maintain and protect the value of property.
- Maintain a high quality of life without causing unnecessary high public or private costs for development or unduly restricting private enterprise, initiative, or innovation in design.

² (from the City web site, <http://www.ci.huntington-beach.ca.us/Government/Departments/Planning/design/index.cfm> accessed December 30, 2009)

4.2.6. City of Los Alamitos

The City of Los Alamitos has incorporated into their General Plan elements such as preservation of historic structures and the preservation and enhancement of the landscaped environment of the City. The General Plan calls for the development of a “Master Tree Planting and Maintenance” plan to outline the location, placement procedures, and appropriate species for City ROW.

4.2.7. City of Seal Beach

The City of Seal Beach, in its General Plan, outlines the City’s issues, goals, objectives, and policies for a variety of the communities concerns, including circulation, open space, cultural resources and growth management. Embedded in each of these are policies that affect the design and character of the city aesthetics; although a specific urban design element is not included in the General Plan. In addition, the City has developed a Street Tree Inventory; although this is available only through permission granted on the City’s website.

4.2.8. City of Westminster

The City of Westminster has developed a separate Design Standards Manual that forms Chapter 17.67 of the Municipal Code. The purpose of the standards is to “assure quality design of developments within the City.” The design standards apply to all properties in the City and include specific detailed design standards for the Civic Center and Little Saigon areas in the city. The design standards provide a vernacular for building developments within the city.

In addition, provisions within the Zoning Code identify policies for the planting and maintenance of vegetation within or adjacent to public ROW. The purpose of these provisions includes:

- To protect and enhance the public’s health, safety, and general welfare;
- To foster and restore the planting of vegetation along the streets of the city, utilizing effective forestry principles;
- To strengthen and maintain the visual and aesthetic values of the streets of the city, which serve as a source of community image and pride;
- To provide an orderly and efficient means of maintaining maximum tree cover and protecting vegetation along the streets of the city.

4.2.9. Summary

The sum of these efforts/regulations by the communities along the I-405 Project corridor indicates that a high value is placed on the aesthetics of the corridor and its place within the community. This increases the likelihood that residents and business owners in the area will have a higher sensitivity to changes in the visual environment.

4.3. LANDSCAPE UNITS

Landscape units are defined as that portion of the regional landscape that can be thought of as containing a distinct visual character. Another way to look at a landscape unit will be to consider it an outdoor room. A landscape unit will often correspond to a place or district that is commonly known among the community.

The I-405 Improvement Project area was divided into seven landscape units. These units are distinct, but not necessarily homogenous, in character. The Landscape Units within the I-405 Project corridor from east to west are described below. Typical views within each landscape unit can be found in Section 3, Figures 7 through 13.

4.3.1. Shopping District Landscape Unit

The Shopping District Landscape Unit includes portions of the commercial areas adjacent to South Coast Plaza and nearby commercial areas. Two other land uses with a large presence within this landscape unit is the vacant field along I-405 between Fairview and Susan Street and the residential area north of South Coast Drive. The portion of I-405 that parallels this landscape unit is included within this landscape unit, in part because there are no sound walls in this unit and the freeway is therefore a visual presence within this unit (as opposed to the South Residential Unit that has a sound wall that separates the freeway from the unit).

4.3.2. South Residential Landscape Unit

Located south of the I-405 corridor, east of Bear Street, and west of the Santa Ana River, the South Residential Landscape Unit primarily consists of single-family residential homes, with a few multi-family complexes included. Both Killybrooke Elementary School and Terwinkle Middle School are found within this unit, as are several neighborhood parks. In addition, there is a commercial area along Harbor Boulevard. The unit was identified based on the more uniform land use when compared to adjacent areas along the I-405 corridor.

4.3.3. Industrial Landscape Unit

The Industrial Landscape Unit is a small unit that is primarily found from west of the Santa Ana River to the Talbert overcrossing. This unit was identified due to the abrupt change in character

from the primarily commercial and residential area to the east across the river to a much more industrial development pattern.

4.3.4. Residential Connections Landscape Unit

This landscape unit takes its name from the number of interchanges found within this unit compared to the other units. The unit is mostly residential and falls within the cities of Fountain Valley, Huntington Beach, and Westminster. The homes are smaller single family homes, but there are a number of multi-family residential units also represented. Some commercial areas are located within the unit, particularly near the interchanges. Both Fountain Valley and Valley Vista High Schools are also located within this unit near the Slater Avenue Overcrossing of I-405.

4.3.5. Commercial Centers Landscape Unit

The Commercial Centers Landscape Unit is dominated by two large commercial magnets – Bella Terra (formerly Huntington Center) and the large Westminster Mall complex. Other notable features within this unit are the Golden West Community College and Westminster High School. Residential, both multi- and single family, make up the balance of the land use within this unit.

4.3.6. Northwest Residential Landscape Unit

This residential landscape unit is located between the Edwards Street and Valley View overcrossings of I-405 and includes portions of the SR-22 Freeway east of Valley View Drive. The area is mostly residential but includes commercial uses near Valley View Drive and in the area of Westminster Boulevard. In addition, a large mobile home park is located near the intersection of the SR-22 (Garden Grove Freeway) and I-405 freeways.

4.3.7. Open Space-Residential Landscape Unit

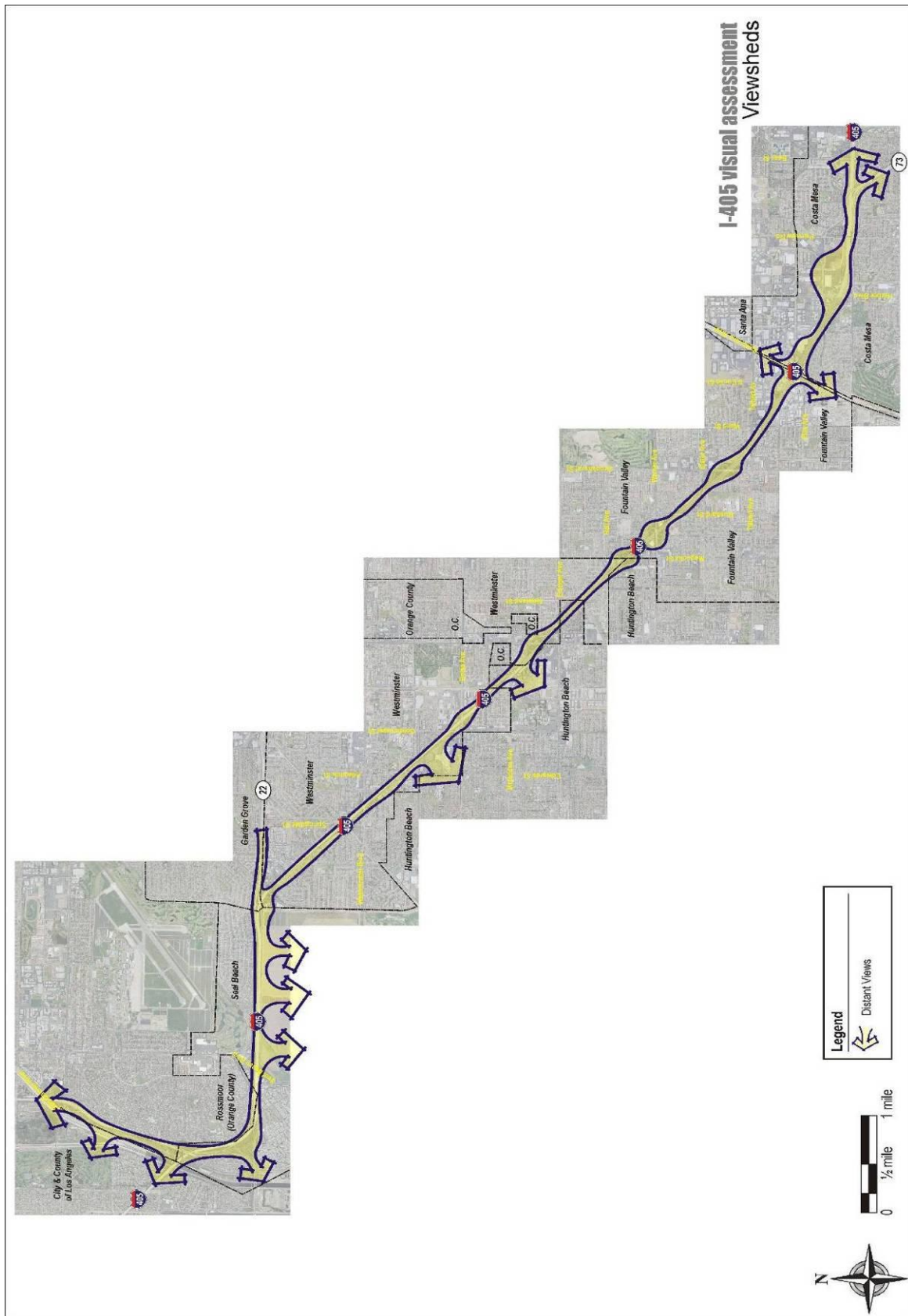
The Open Space-Residential Landscape Unit is the western-most unit within the study area. The developed residential areas include Leisure World, Rossmoor, and portions of the cities of Seal Beach and Los Alamitos. In addition, there are substantial open spaces within this unit associated with the Naval Weapons Station Seal Beach, Los Alamitos Army Airfield, the San Gabriel River, and the Old Ranch Golf Course. One distinction to be made regarding the Naval Weapons Station Seal Beach is that while the visual appearance of the site is open space, the site is currently zoned ‘Military’ by the City of Seal Beach. The site is not a designated open space.

4.4. PROJECT VIEWSHED

A viewshed is the area normally visible from an observer's viewpoint of location and is limited by the screening/obstruction effects of any vegetation or structures. A viewshed can include views from within the project outward or from outside of the area into the project corridor. While viewpoints represent specific locations within the project area, a viewshed describes what is seen from that viewpoint, including the limits of what can be seen. When these individual points are strung together, the viewsheds create an overall project viewshed that can be used to describe the project area. The viewshed includes the locations of viewers within the project area that are likely to be affected by visual changes brought about by the project features.

For the I-405 Improvement Project, views into the corridor are associated with the cross streets and are generally located near (approximately 0.25 mile) the corridor due to the relatively flat nature of the project area. Areas in which high-rise buildings are located may have views farther out from the corridor. From within the corridor, views out are also generally limited to a short distance due to the flat groundplane and the proximity of buildings. In addition, the existing sound walls also help to screen views into and out of the corridor. Figure 9 depicts the project viewshed from the within the corridor.

Figure 9: Corridor Viewshed



5.0. Existing Visual Resources and Viewer Response

5.1. LANDSCAPE UNITS

Visual Quality, as used in FHWA's publication entitled *Visual Impact Assessment for Highway Projects* (FHWA, 1981) methodology, is based on the concepts of the science of aesthetics³ and is analogous to the Bureau of Land Management's scenery quality rating and the U.S. Forest Service's variety classes. The methods outlined in the FHWA report describe many factors that can contribute to a landscape's visual quality, but these factors can ultimately be grouped under three headings: vividness, intactness, and unity, as defined in Section 1.4.

For the discussion of visual quality associated with each landscape unit described below, it is important to remember that these are general evaluations for the unit as a whole. Specific locations within the unit may have higher or lower visual quality than the average. In the discussion of Key Viewpoints in Section 6 of this report, visual quality is assessed for specific views, and these may differ from the average, or general, visual quality rating assigned below because that rating only considers a specific location within the landscape unit.

5.1.1. Shopping District Landscape Unit

The Shopping District Landscape Unit is the eastern most unit in the study area. It includes both the freeway and land along its northern edge. The unit is primarily commercial, but there is a large residential area between the Bear and Fairview Streets. Sound walls in the unit are limited to this area along the ramp from SR-73. Typical views within the Shopping District Landscape Unit are shown in Figure 10.

Existing Visual Character: The development in much of this landscape unit is relatively new and generally well maintained. The buildings tend to be large, including the big box store IKEA. There is an existing sound wall along most of the EB lanes which forms the edge of the landscape unit. Views from the WB freeway lanes are into the commercial areas. East of Harbor Boulevard, there are a number of braided ramps and overcrossings that tend to restrict views for brief periods while traveling WB on the 405. Most of the commercial properties that border the freeway have views into the freeway corridor. Landscaping within the freeway corridor is limited

³ "Aesthetics is defined as the science or philosophy concerned with the quality or sensory experience ... It is also viewed as a body of knowledge about those characteristics of objects that make them pleasing or displeasing to the senses, and those characteristics of human perception that affect sensation. The quality of being aesthetics is not the opposite of 'practicality' or 'reality', but rather another aspect or way of experiencing the same real world phenomena. Thus, blue skies, uncontaminated water and uncluttered urban landscapes all have aesthetic value, because they imply health, pleasure and security." USDOT, 1981. United States Department of Transportation, Federal Highway Administration, Office of Environmental Policy, Visual Impact Assessment for Highway Projects, U.S. Department of Transportation, Washington D.C. March., page 117.

by the space available, while most of the commercial properties are landscaped both along their perimeters and within associated parking lots.

Existing Visual Quality: The overall visual quality of the Shopping District Landscape Unit is moderate, with moderate vividness, intactness, and unity. In general the areas on the eastern edge of the unit have a higher visual quality than other areas. The freeway areas, due to the number of lanes and the scale in the landscape tend to lower the overall visual quality found in the unit.

5.1.2. South Residential Landscape Unit

The South Residential Landscape Unit falls exclusively within the city of Costa Mesa. In general there is an existing sound wall between I-405 and the landscape unit, except at Harbor Blvd, where some commercial land uses exist. Both Moon Park and Gisler Park back on to the freeway ROW in this unit. Typical Views for this landscape unit can be seen in Figure 11.

Existing Visual Character: In general this landscape unit is separated from the freeway corridor by a sound wall that parallels the edge of the freeway through most of the unit. The exception to this is in the Harbor Boulevard area. The neighborhoods within the unit are primarily single family homes that are well maintained and landscaped. Most of the landscaping within the unit is made up of ornamental species. In general the unit sits level with the freeway, except at the Santa Ana River crossing on the west end and the SR-73 merge on the east end; at both locations, the freeway is generally above the adjacent neighborhoods. The two street crossings, Harbor Boulevard and Fairview Road cross over the freeway.

Existing Visual Quality: The overall visual quality of this landscape unit is moderately high, with moderate vividness, moderately high intactness and moderately high unity. Because the freeway is visually separated from the landscape unit by a sound wall and the vegetation associated with the wall, it does not detract from the unit's visual quality.

5.1.3. Industrial Landscape Unit

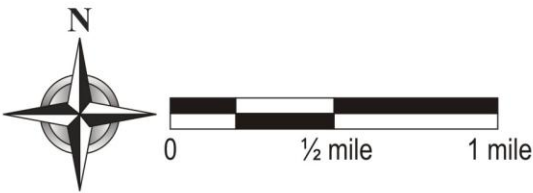
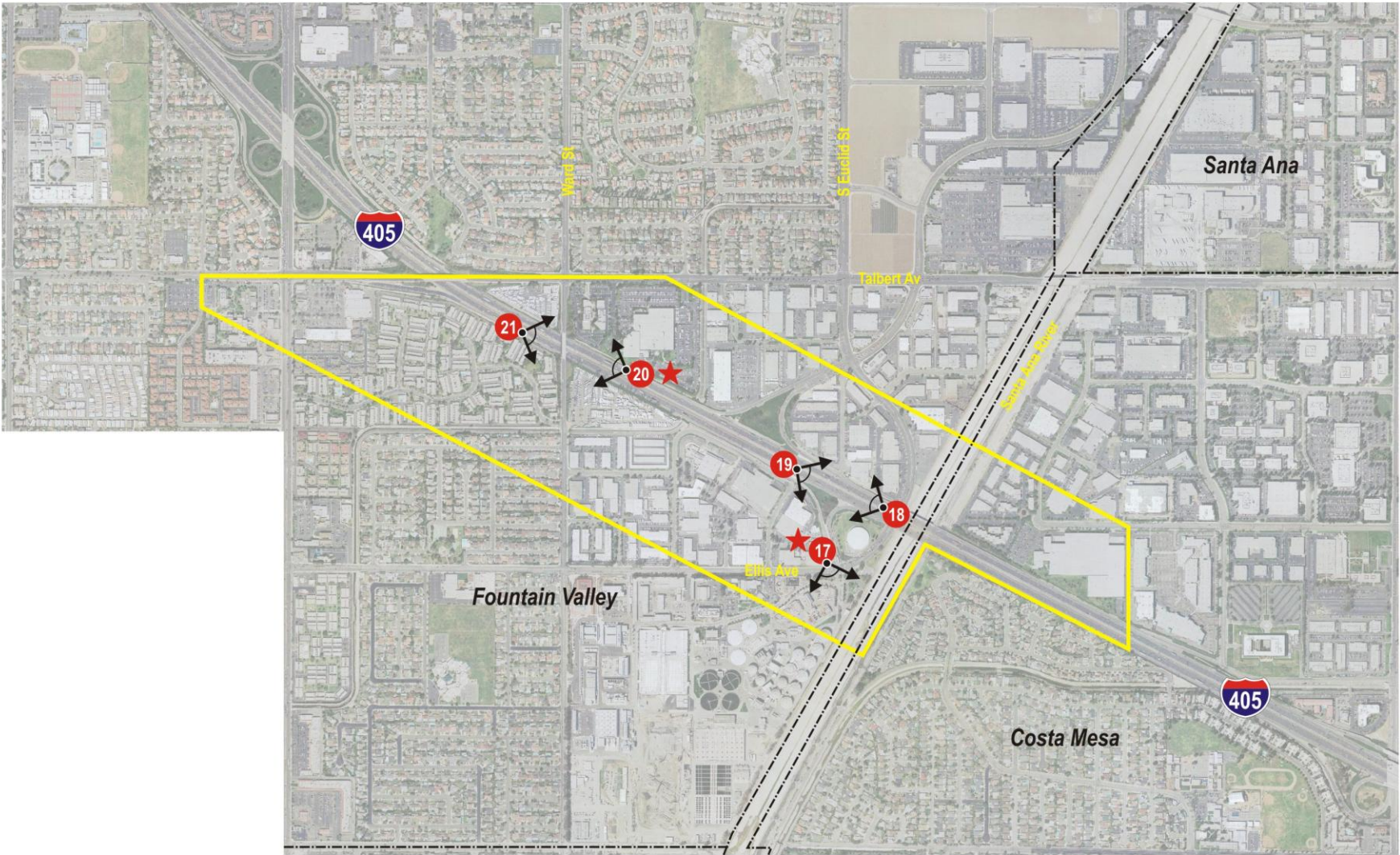
The Industrial Landscape Unit is the smallest of the units. It is centered on the Santa Ana River and the adjacent Orange County Sanitation District facility. Because the unit has limited residential land uses, there are few existing sound walls along I-405, except north of the



Legend

- ★ Key Viewpoint
- ⬆️ # Typical View
- Landscape Unit Boundary

Figure 10: Shopping District Landscape Unit



Legend

- ★ Key Viewpoint
- ↗ # Typical View
- Landscape Unit Boundary

Figure 12: Industrial Landscape Unit, Typical Views

Ward Street overcrossing. Typical views for the Industrial Landscape Unit can be seen in Figure 12.

Existing Visual Character: The dominant feature of the landscape unit is the Santa Ana River and its associated levees. The development pattern within the unit includes industrial/commercial buildings and a sewer treatment facility along the river. At the western edge of the unit, south of Talbert Avenue and west of Ward Street, there is a multi-family residential area. On- and off-ramps from I-405 to Newhope Street provide landscaping with the freeway corridor for WB traffic; likewise, ramps to/from Ellis/S. Euclid Street provide a similar effect for EB traffic.

Existing Visual Quality: The existing overall visual quality of the landscape unit is moderately low, with moderately low vividness and intactness, and moderate unity. The rip-rapped embankment of the levees along the river, the concrete river structure channel, and the wide paving of the freeway section with little visual relief from the paving, combine to lower the visual quality.

5.1.4. Residential Connections Landscape Unit

The Residential Connections Landscape Unit consists of primarily single and multi-family residential development, with commercial uses found along arterial roadways. Along I-405 there are a number of sound walls. Typical views for this landscape unit can be seen in Figure 13.

Existing Visual Character: The residential areas within this landscape unit are generally older, single family homes from the 1960's and 1970's. While the landscape unit is primarily residential in character, there are areas of commercial development, especially at the Magnolia Street and Warner Avenue intersections. Fountain Valley High School is also close to the corridor near the Slater Overcrossing of I-405.

Throughout much of this corridor, sound walls are in place between the freeway corridor and the residential areas. These block views into and out of the freeway corridor. Unique within this unit, there is a pedestrian bridge at Heil Avenue. The three large interchanges, at Brookhurst Street, Warner Avenue, and Magnolia Street, add substantial green space to this portion of the corridor.

Existing Visual Quality: The overall existing visual quality of this area is moderate with moderate vividness, intactness, and unity. Residential and freeway view areas softened by plantings, such as vines on the walls and the interchange plantings help to increase the visual quality, while other aspects, such as the appearance of sound wall to sound wall paving in the I-405 corridor detract.

5.1.5. Commercial Centers Landscape Unit

The Commercial Centers Unit consists of a mix of large scale commercial centers (Westminster Mall, Huntington Center) and residential land uses, both single and multi-family. Because of the mix of land use types, the placement of sound walls in this unit is less consistent along the corridor with large open areas associated with the commercial uses. Buckingham Park and Westminster High School both back up to the I-405 corridor near the Edward Street Crossing over the freeway. Figure 14 includes typical views for this landscape unit.

Existing Visual Environment: The landscape unit is the most diverse in terms of land uses found within the unit. In addition to the large commercial centers, there are smaller areas of commercial development, single and multi-family residential, and schools. Where residential development backs up to the freeway corridor, there are existing sound walls that separate the homes from the freeway. In these locations views into or out from the freeway corridor are limited. Many of the walls include vine plantings that soften the face of the wall to viewers.

In general the landscaping that might soften the views along the freeway is limited, due to the limited ROW that exists within the corridor. There are two large interchanges within this unit – Beach Boulevard Interchange and the Goldenwest/Bolsa Avenue Interchange. These provide large vegetated areas along the freeway corridor.

Existing Visual Quality: The existing visual quality for the landscape unit is moderate with moderate vividness, intactness, and unity. Areas of new or renovated development, such as the Bella Terra Mall, generally add to the overall visual quality of the unit. Detracting elements include the wide expanse of freeway paving and the lack of landscaping or other softening elements along the freeway.

5.1.6. Northwest Residential Landscape Unit

The Northwest Residential Landscape Unit falls almost exclusively within the City of Westminster. It is near the junction of I-405 and SR-22. Portions of SR-22 within the unit were recently reconstructed as part of another project. The unit is primarily residential except at its northern and southern ends where commercial uses are included. Indian Village Park backs on to the freeway adjacent to the Springdale Street overcrossing. Typical views for this landscape unit can be seen in Figure 15.

Existing Visual Character: The unit is primarily residential, except for the commercial area around Westminster Boulevard and the automobile sales area at Valley View Drive. The residences include both single and multi-family and there is a large mobile home park close to

the I-405/SR-22 merge. There are existing sound walls along much of both I-405 and SR-22, blocking views into and out of the corridors. The portion of SR-22 within this unit was recently rebuilt as part of another project and additional aesthetic elements were added to the existing sound walls along with the inclusion of vine plantings along the walls.

Landscaping in both the Westminster Boulevard and Valley View Drive interchanges provide some softening of the interchange elements from the two freeways.

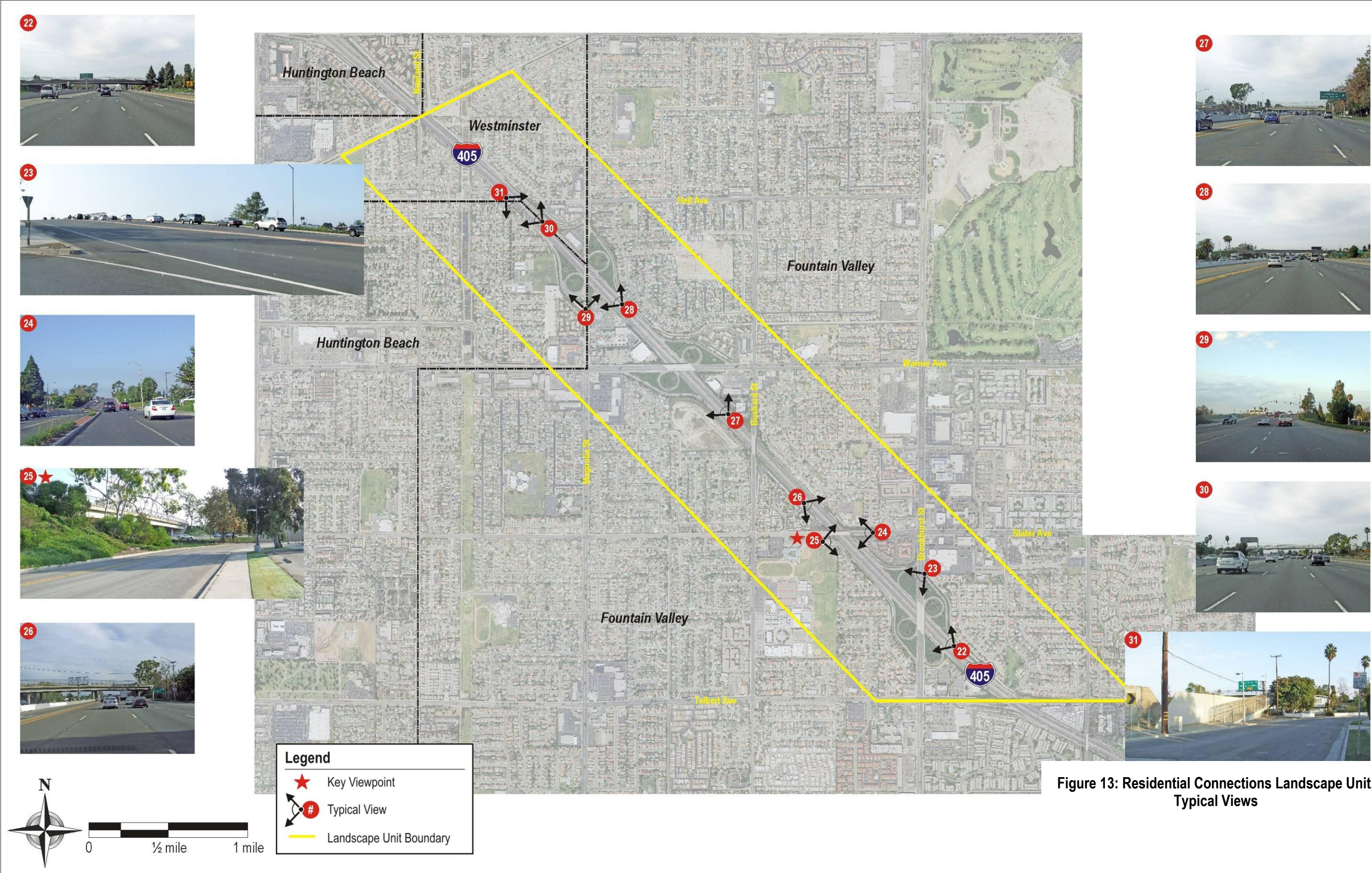
Existing Visual Quality: The existing overall visual quality of the unit is moderate with moderate vividness, intactness and unity. Similar to what is found in other residential areas along I-405, view areas softened by plantings, such as vines on the walls and the interchange plantings help to increase the visual quality, while other aspects, such as the appearance of sound wall to sound wall paving in the I-405 corridor detract.

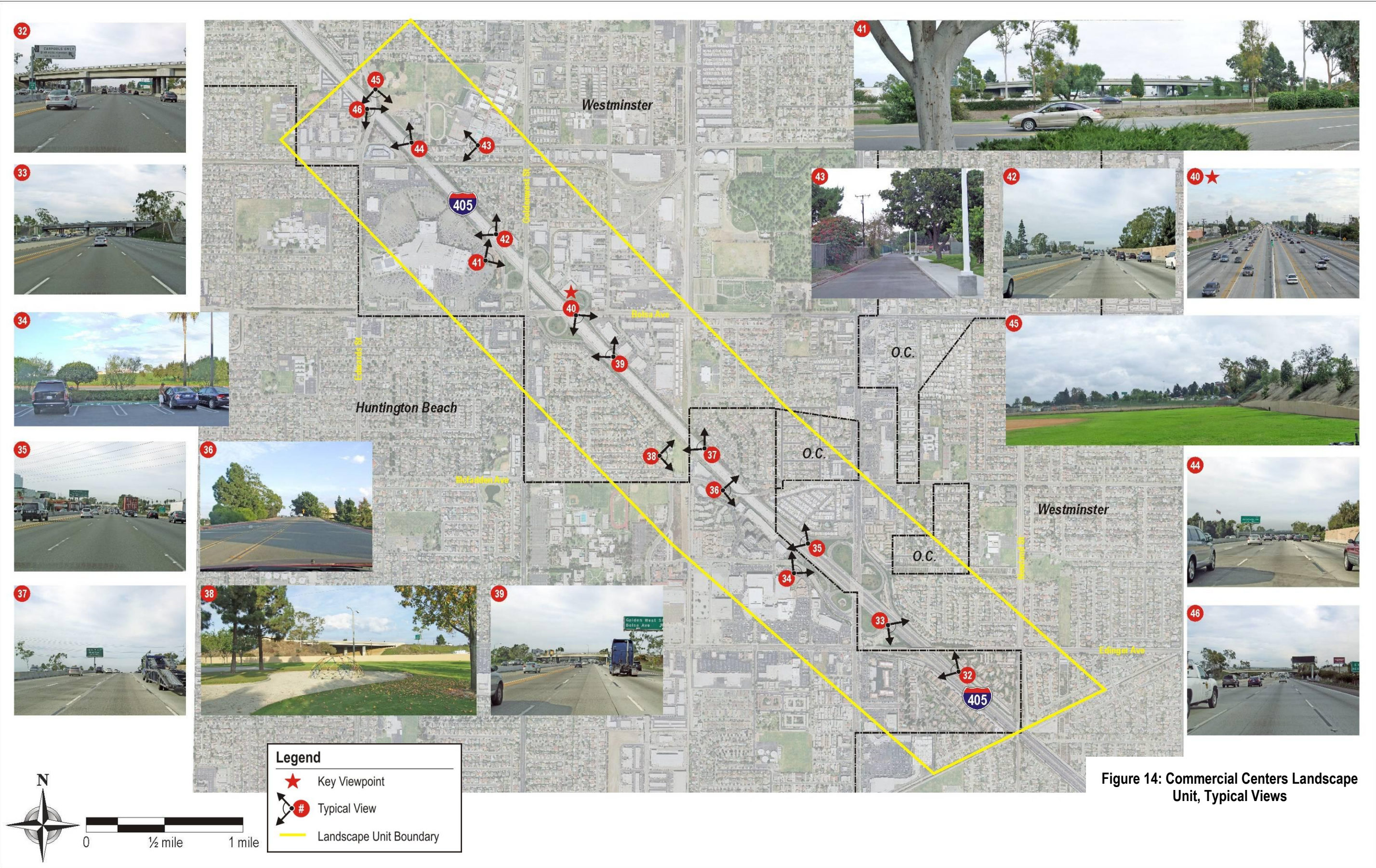
5.1.7. Open Space-Residential Landscape Unit

The Open Space-Residential Landscape unit is the western-most within the study area. The developed residential areas include Leisure World, Rossmoor, and portions of the cities of Seal Beach and Los Alamitos. In addition, there are substantial open spaces within this unit associated with the Naval Weapons Station-Seal Beach, Los Alamitos Army Airfield, the San Gabriel River, and the Old Ranch Golf Course. As previously mentioned, the areas of the Naval Weapons Station Seal Beach are not designated open space, but are visually open based on the lack of development on this portion of the base. Typical views for this landscape unit can be seen in Figure 16.

Existing Visual Character: Much of the developed area within this unit is residential in nature. A small commercial area is located at the Seal Beach Boulevard interchange. Areas along the freeway with residential development have sound walls that block views into or out from the freeway. Where open space exists, such as the Naval Weapons Station Seal Beach, there are no sound walls and the views from the corridor into the open field provide a “borrowed” open space landscape.

At the western edge of the unit, there is a large interchange formed by the convergence of the I-405 with I-605 and SR-22. The areas alongside the numerous ramps create a large landscape area. Additional landscaping is provided with vines on the sound walls.





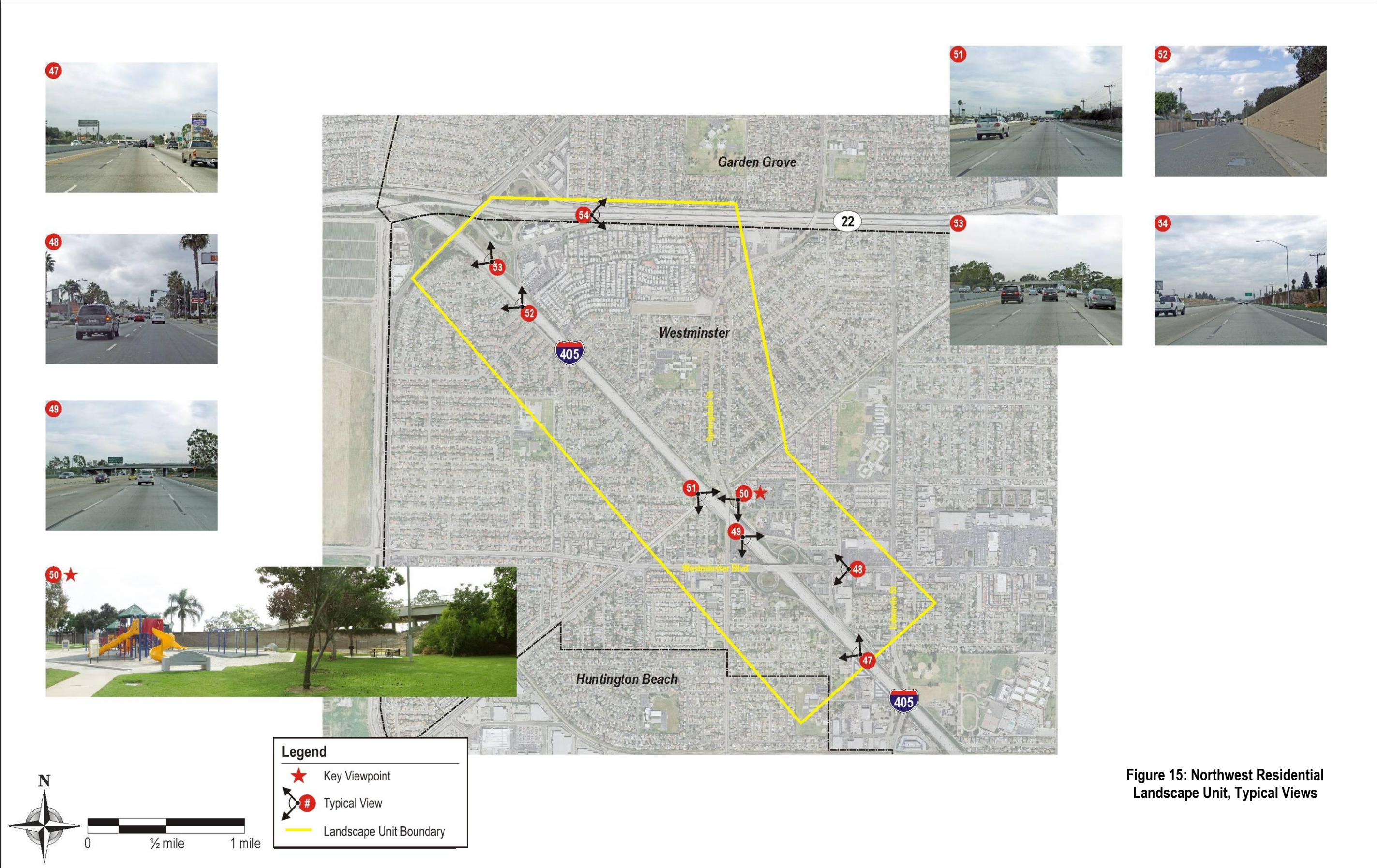
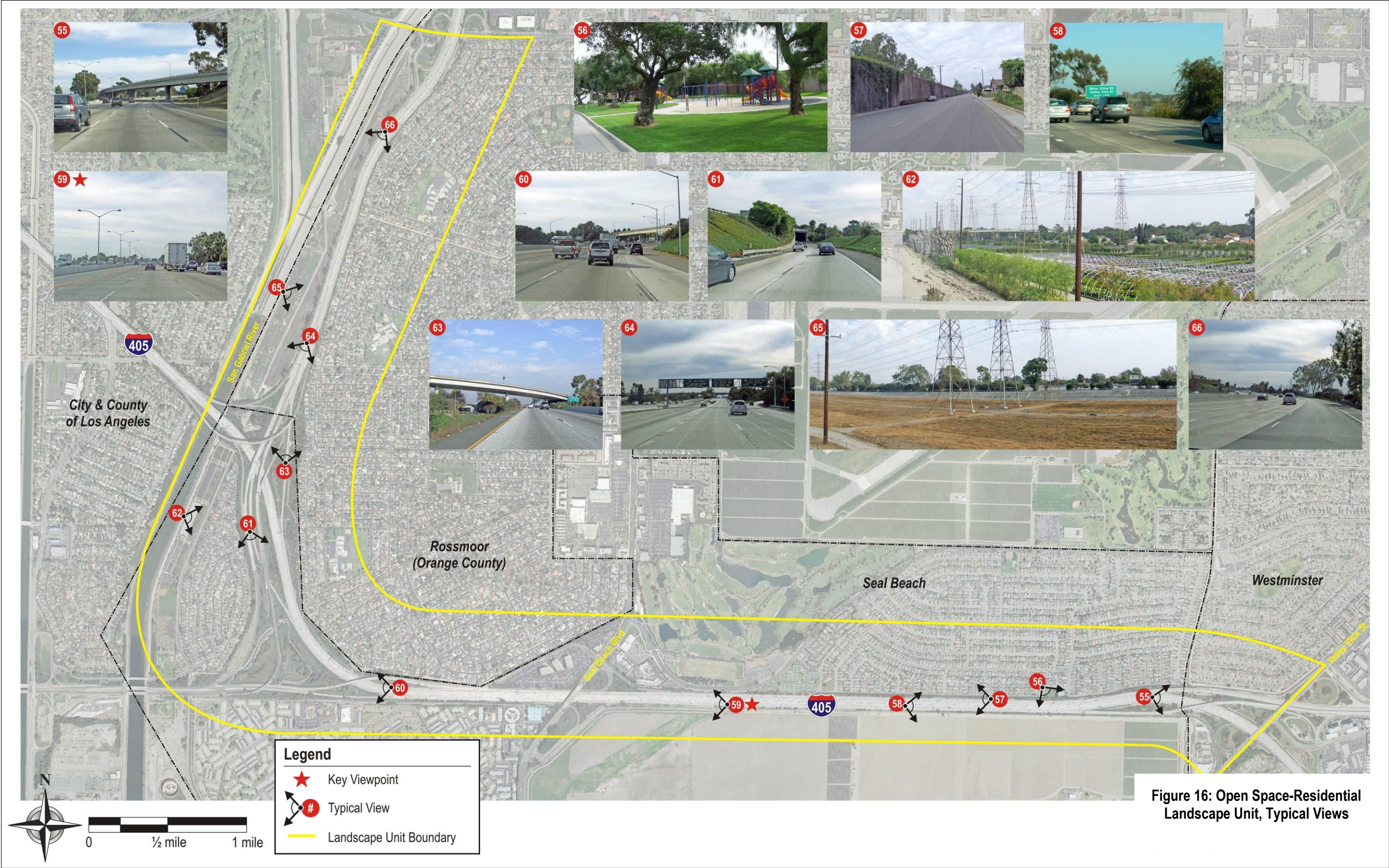


Figure 15: Northwest Residential Landscape Unit, Typical Views



Existing Visual Quality: The overall visual quality within the landscape unit is moderate with moderate vividness and intactness and moderate unity. The western areas in general have a higher visual quality due to the open space and landscaping. Although the open space adds to the visual quality, the flat nature of land does not add to the vividness of the unit.

5.2. PREDICTING VIEWER RESPONSE

Viewer response is based on two elements: viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the public might react to visual changes that result from the highway improvements.

5.2.1. Existing Viewer Sensitivity

Viewer sensitivity can be defined as the viewer's concern for scenic quality and his response to change in the visual environment that creates the view. Local values and goals may place greater significance on certain landscape components or locations that might appear unremarkable to an outside observer. Even when the existing appearance of a project site is uninspiring, a community may still object to projects that fall short of visual goals. Designers can learn about these special resources and community aspirations for visual quality through citizen participation procedures, as well as from local publications and planning documents.

To varying degrees, each city within the corridor has established guidelines, codes, and/or regulations that indicate the importance the city places on the aesthetics and landscape of developments. In general, the cities of Costa Mesa and Huntington Beach have expressed a high degree of interest in the interface between the local street network and the freeway, and the City of Westminster has expressed concern for the development of the city ROW and community. The residents of these communities are therefore likely to be very sensitive to changes in the visual environment and any impacts associated with the proposed improvements on I-405.

5.2.2. Viewer Exposure

Viewer exposure is typically assessed by considering the number of viewers exposed to the view, the type of viewer activity associated with the view, the duration of their view, the speed at which the viewer moves through the environment, and the position of the viewer. In general people are active receptors of visual information and seek understanding from experiencing their surroundings. Therefore, high viewer exposure heightens the importance of early consideration of urban design, public art, and architecture and their roles in managing the visual resource effects of a project.

5.3. EXISTING VIEWER GROUPS, EXPOSURE, AND AWARENESS

5.3.1. Freeway Travelers

Along the I-405 corridor, thousands of travelers—including regular commuters, frequent travelers, occasional travelers, and tourists—traverse the project area in a typical day. Of these users, the daily commuter will be expected to have the greatest sensitivity to any changes in the visual environment due in large part to his or her daily exposure to the corridors. Other freeway users will have a decreasing exposure and knowledge of the previous visual environment and thus will be expected to have a decreasing sensitivity to any changes. With congested traffic, the length of exposure increases: drivers have a longer time to focus their attention on the highway elements, and passengers in general tend to have more time and a wider range of views than do drivers.

5.3.2. Community Residents

Residents can be expected to have a high concern and a high degree of sensitivity to changes in the visual environment with regard to the project and its effect on views from their homes and neighborhoods. In addition, residents can be expected to have a concern about the views from the highway into their communities. In areas of adjoining cities and communities, there is often a desire to differentiate one community from the next, particularly along freeways that often serve as the main entry points to a community.

5.3.3. Business Owners, Employees, and Customer

In general, this user group will be expected to have a low sensitivity to the changes in the visual environment. This group is more concerned with maintaining access to the businesses than with the change in the visual environment. However, business owners are often concerned with the aesthetics of the project corridor and how that might reflect on the community, as are residents.

5.3.4. Local Street Users

Local street users, including drivers, bicyclists, and pedestrians have generally short-duration views into the corridor every day, mostly from the many cross streets over and under the corridor. Because the speed of travel of these viewer groups is much slower than that of the highway traveler, they are expected to have a high to moderate sensitivity to changes in the visual environment, depending on their familiarity with the current views. Views into the project area can also be broken by vegetation, buildings, or fencing that limits some views or break up the panorama into intermittent views.

6.0. Visual Impact Assessment

6.1. ASSESSING PROJECT IMPACTS

The visual impact of project alternatives is determined by assessing the visual resource change resulting from the project and predicting viewer response to that change. Visual resource change is the total change in visual character and visual quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the existing visual character of the landscape. The second step is to compare the visual quality of the existing resources with the projected visual quality after the project is constructed. Next, viewer response to the changes is the sum of viewer exposure and viewer sensitivity to the project as described in Section 2. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to oppose the change.

NEPA and CEQA require consideration of visual resource impacts of projects in preparation of environmental documents. The CEQA guidelines (1998) state that a project may have a significant impact on visual quality if it will:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare, which will adversely affect day- or nighttime views in the area.

For projects that do not create a significant impact on existing visual character or quality, a more nuanced approach categorizes impact levels as low, moderately low, moderate, moderately high, and high based on the following descriptions:

- Low (L): Low negative change to existing visual resources, and low viewer response to that change. May or may not require mitigation.
- Moderately Low (ML): Low negative change to the visual resource with a moderate viewer response, or moderate negative change to the resource with a low viewer response. Impact can be mitigated using conventional methods.

- Moderate (M): Moderate negative change to the visual resource with moderate viewer response. Impact can be mitigated with five years using conventional practices.
- Moderately High (MH): Moderate negative change in the visual resource with high viewer response or high negative change with a moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than five years to mitigate.
- High (H): High level of negative change in character or a high level of viewer response to the change such that extraordinary architectural design and landscape treatments may not mitigate impacts below a high level. An alternative project design may be required to avoid high negative impacts.

The following analysis first provides a description of any substantial impacts as defined by CEQA. Following this is an analysis of impacts associated with each alternative. The changes to the visual environment for Alternative 1 include a description of the changes specific to each landscape unit. These analyses only describe changes to the visual environment and do not seek to quantify those changes. For Alternatives 2 and 3, any changes that are different than those described under Alternative 1 are identified. Following this is an analysis of the key viewpoints identified within the corridor. This analysis of key viewpoints provides a simulation showing the anticipated visual environment, as well as a summary that quantify the anticipated effect of the changes on the key viewpoint.

6.2. IMPACTS AS DEFINED BY CEQA

As previously discussed, CEQA outlines impacts that will be considered significant if created by the proposed project. These relate to the effects on scenic vistas and specific scenic resources within a scenic highway, creating a substantial degradation of the existing visual character, or creating a substantial new source of light or glare.

For the three alternatives proposed for the I-405 Improvement Project, none will cause a significant impact to these areas of concern. There are no scenic roads in the project area including the I-405 and any associated cross streets/state highways and no designated scenic resources are associated with the freeway corridor. The general visual character of the freeway will not be greatly altered by the addition of one or two lanes (depending on the alternative and location). Lastly, the addition of lanes is not anticipated to create a new source of lighting or glare than currently exists along the freeway. The proposed SB on-ramp from Euclid over the Santa Ana River has the potential to create a spot location within the corridor where there will be new lighting. However this ramp lighting can be mitigated using cut-off fixtures and shielding to block light trespass into the neighborhood and Moon Park.

Based on this analysis, there will be no substantial impact caused by any of the three alternatives under consideration.

6.3. BUILD ALTERNATIVE 1

Since it is a project objective to minimize construction outside of existing ROW limits, differences in visual effects will primarily consist of roadway views pertaining to pavement width and bridge replacements. Given the number of existing sound walls in the corridor, many of the views into or out of the corridor are restricted to areas with adjacent commercial land uses where there are no sound walls or to the bridge crossings.

The summary below describes the anticipated changes to the visual environment by each project element. Following that is a description by Landscape Unit of the anticipated effects to the visual environment.

- **Vegetation Removal:** Since the project will not be acquiring additional ROW, except perhaps in spot locations, the addition of lanes will cause the removal of the majority of the vegetation along the freeway mainline (areas along the freeway between interchanges). In these locations the roadway will extend from ROW to ROW. Much of the vegetation that will be removed in these areas consists of eucalyptus trees and ice plant groundcover. For Alternative 1, landscape areas will be reduced by approximately 18% (or 86 acres) in favor of additional paved surfaces.

It is likely that within most interchanges the some existing vegetation will remain, except for the plantings near the bridges since these will be removed by bridge construction activities. It may be possible to add additional plantings within the interchanges to replace some of the vegetation removed from within the corridor. Vegetation along local streets will be replaced if it is disturbed by construction activities.

- **Freeway Paving:** A new general purpose lane will be added in both directions and new auxiliary lanes will be added in certain stretches of the corridor. The percentage of pavement within the ROW will increase by approximately 18% in this alternative. The result of this overall increase in paving will be especially noticeable to the freeway travelers. User groups outside of the freeway will likely not notice the change due to the presence of existing and proposed sound walls that stretch along much of the corridor. In addition to the new lanes, the addition of standard shoulders will also increase the paved surface within the corridor.

- **Overcrossings/Bridges:** Construction of Alternative 1 will require the replacement of 18 bridges in the corridor. The bridges will replace existing bridges within the corridor and will be wider to accommodate a widened paving section of the freeway. Because the bridges are wider, they will likely have a deeper girder and appear thicker to the freeway traveler. However, they will also be raised slightly from their existing elevation, so it is not anticipated that the thicker depth will be very noticeable. Also, given that the existing bridges were generally constructed without the design and aesthetics considerations/CSS usually applied to new projects, the new structures shall be more aesthetically pleasing than the current structures.

The eight new bridges within the corridor will be associated with ramp connections and will in general run parallel to the freeway mainline. This placement will make them less visible to the freeway traveler as compared to bridges that cross directly over the freeway.

- **Retaining Walls:** Large retaining walls (those over 5 feet in height) will be located with the Magnolia, Euclid and Warner Interchanges. The height of these walls will vary, from nothing to up to 30 feet in some locations. The higher walls will be closest to the associated bridge crossing. Other smaller walls (less than 5 feet in height) will be found in the corridor, with the exact location to be determined during final design.
- **Sound Walls:** Most of the existing sound walls within the corridor will be replaced to accommodate the widened paving. In some instances retaining walls will be placed below these walls, although these retaining walls are anticipated to be less than 5 feet in height. A new wall will then be constructed on top of the retaining wall section.
- **Local Streets:** For local streets that crossover the freeway, there will be an increase in the slope of the local street as it approaches the bridge crossing. This will be due to the raised height of the bridge over the freeway. The effect of this will be minor and it shall not change the overall visual appearance of the local street. Side slopes along the approach may also be longer or steeper than the current.

6.3.1. Shopping District Landscape Unit

For the I-405 freeway within the Shopping District Landscape Unit, the primary change will be the addition of the I-405/SR-73 direct connector ramp. This will be a new bridge structure placed

between the two existing ramp bridges already found within the interchange. The new bridge will be at the same elevation as the two existing bridges, as shown in the drawing in Appendix A. The bridge will include a large straddle bent across both the NB and SB lanes of I-405. The bridge and straddle bents will be additional elements to the freeway, but they are not anticipated to greatly change the visual character of the landscape unit, due to the number of existing structures – ramps, bridges, and walls – currently found within the I-405 corridor within this unit. In addition, the Fairview Road Bridge will be replaced and the Harbor Boulevard undercrossing widened.

A new auxiliary lane will be constructed along the NB lanes between South Coast Drive and the Euclid/Ellis Interchange. This lane will run along the current outside edge of the NB lanes and will widen the paving area for NB travelers. Vegetation along the NB lanes will be removed to allow for the additional lane. Along the SB lanes, a new auxiliary lane will extend into the landscape unit from the Euclid/Ellis interchange to Harbor Blvd.

6.3.2. South Residential Landscape Unit

The sound walls along the outside edge of the SB lanes of the I-405 will screen the South Residential Landscape Unit from most of the proposed changes within the corridor. For user groups within this landscape unit, the primary points of interaction will be at the new Fairview Road and Harbor Blvd Bridges and those users along the Santa Ana River Trail, where a new on-ramp bridge from the Euclid/Ellis Interchange will cut across the river. Moon Park, in this same area, is not anticipated to be impacted since it sits below the river embankment and the new ramp will be screened by the embankment.

6.3.3. Industrial Landscape Unit

Within the Industrial Landscape Unit, the new bridge for the SB Euclid on-ramp will be the most noticeable new feature. It will be a very visible element to those on the Santa Ana River Trail. For those traveling on the I-405 corridor, the new auxiliary lanes along the NB and SB lanes between Euclid/Ellis and Harbor Blvd will add to the visible pavement cross section of the roadway as will the addition of a general purpose lane between Euclid/Ellis and the Brookhurst interchange. The Ward Bridge over the freeway will be replaced and the bridge carrying I-405 over the Santa Ana River/Euclid/Ellis will be widened.

The new SB on-ramp from Euclid/Ellis will add a new bridge across the Santa Ana River just south of the existing I-405 Bridge as well as a span over the entrance to the Orange County Sanitation District's wastewater treatment plant entrance. Between these two bridges, the ramp will be elevated by retaining walls. This ramp, and its associated walls and bridge elements will

introduce a new visual element to travelers along the Euclid/Ellis roadways. The number of viewers from the wastewater facility is expected to be few; however the Euclid/Ellis interchange area has high traffic volumes, so the changes will be a noticeable addition for those travelers.

The existing vegetation within the Euclid/Ellis interchange will be preserved, since the project proposes only minor realignments to the existing ramps. Existing trees and other plantings adjacent to the Ward Street Bridge will likely be impacted by the reconstruction of the bridge

6.3.4. Residential Connections Landscape Unit

The interchanges within this landscape unit provide more open green space to the freeway than is found in many of the other landscape units. Alternative 1 will alter the existing ramps by realigning or removing the loop ramps and adding a diamond ramp in its place. The construction of the new ramps and the shifting of others will likely cause the removal of much of the existing vegetation within the interchange areas. Vegetation along the mainline of the freeway will all be removed.

In addition to realigning the ramps, all bridge overcrossings will be replaced throughout this landscape unit, including the Heil Street Pedestrian Crossing. The new bridges will be longer than the current spans and the bridge will also sit slightly higher in the view than the current bridges.

One of the larger ROW purchases occurs within this landscape unit. There is an existing fun center call Boomer's and a skating rink that currently backs up to the I-405 corridor near the intersection of Magnolia and Warner. Alternative 1 will remove these two businesses, and a braided ramp will be located along the freeway edge of the property. Because there is no existing sound wall here, the removal and replacement will be a noticeable change to the corridor.

6.3.5. Commercial Centers Landscape Unit

The anticipated changes to the visual environment within the Commercial Centers Landscape Unit are anticipated to be similar to those described under the Residential Connections Unit. Namely, the existing interchange ramps will be realigned to varying degrees. Existing bridges will be replaced. Vegetation within the interchanges will be affected by the realignment of the ramps and the vegetation along the corridor mainlines will be removed.

Because this stretch has fewer sound walls, changes within the freeway corridor will be more noticeable to those outside of the corridor than in other landscape units.

6.3.6. Northwest Residential Landscape Unit

The anticipated changes to the visual environment caused by Alternative 1 within the Westminster Landscape Unit shall be similar to those described in the previous landscape units. Ramp alignments within the Westminster Blvd and the Valley View interchanges will be realigned to varying degrees affecting the landscape within the interchanges. Any planting currently found between the sound wall and the edge of the paving will be removed. New bridges will be constructed over the freeway at Westminster Blvd and Springdale St. The paving cross section will appear wider due to the addition of lanes and shoulders.

Because of the number of existing sound walls within this landscape unit, the changes will be most noticeable to the freeway travelers.

6.3.7. Open Space-Residential Landscape Unit

The most noticeable change within the Open Space-Residential Landscape unit under Alternative 1 will be the additional paving within the corridor. Here the proposed I-405 cross section will be at its widest with 9 lanes plus an auxiliary lane. Existing vegetation along the freeway ROW will be removed. The bridges within this landscape unit will not be replaced or widened because they are currently being reconstructed by the SR-22 WCC Project. The resulting structure will accommodate the required lanes proposed under all alternatives for the I-405 Improvement Project.

6.4. BUILD ALTERNATIVE 2

Alternative 2 will construct two general purpose lanes in each direction, rather than the single lane in Alternative 1. In general the two lanes will fall between the Euclid/Ellis and the SR-22/Valley View interchanges. In other locations auxiliary lanes are lengthened and converted to a GP lane. The effect of this will be similar to that proposed in Alternative 1, although the pavement cross-section will appear wider to the freeway traveler.

The proposed bridge replacements will be the same length as in Alternative 1 since they are being built to the ultimate expansion capability. The amount of paved area within the ROW will increase by approximately 21% in this alternative and the area available for revegetation will be reduced by 21%, or 99 acres. The effects to the visual environment for the addition of retaining and sound walls, and local streets will be similar to Alternative 1.

6.5. BUILD ALTERNATIVE 3

In terms of pavement width, Alternative 3 has similarities to both Alternatives 1 and 2. By adding both an express lane and a general purpose lane, the overall width of the proposed paving most closely matches that proposed for Alternative 2 for most of the corridor, except for the area north of SR-22/Valley View where it resembles Alternative 1.

The major difference in Alternative 3 is the addition of a direct connector bridge between SR-73 and I-405. This bridge will be at approximately the same elevation as the existing bridges in the interchange, but will still have the net effect of increasing the urban nature of the interchange farther into the I-405 corridor.

Overall in the corridor the percent of paved area (impervious surface) will increase by 22% under this alternative. The corresponding reduction in landscape area results in approximately 104 acres less available for landscaping/revegetation. From a visual impact perspective, the overall effects of this expanded pavement width for Alternative 3 are similar to those described under Alternatives 1 and 2. The effect on the visual environment for the other project elements (bridge replacements and widenings, retaining and sound walls, etc) will be similar to those described in Alternative 1.

6.6. NO-BUILD ALTERNATIVE

Activities that will occur under the No-Build Alternative include routine maintenance of the project corridor. The roadway will not be expanded for HOV lanes. However, the current SR-22 WCC Project will continue, so the HOV lane from the SR-22 to I-605 will be completed as will the associated bridge replacements. Elsewhere in the corridor, the views will remain essentially the same as the current views.

6.7. GLARE

The existing freeway is currently well lit with street lighting along the corridor and within existing interchanges. The proposal alternatives are not anticipated to change the existing lighted conditions or add a new source of light or glare. This analysis will apply to each of the three proposed alternatives.

6.8. SHORT-TERM VS. LONG TERM IMPACTS

As the name implies, short-term impacts are of relatively short duration (e.g., the visual presence of construction equipment or the time for establishment of new plants). Long-term impacts are those that are either permanent to the corridor, such as new walls or impacts that take much longer to achieve fully alleviate e.g., the length of time required for new plantings to reach maturity).

For the I-405 project area, the removal of the eucalyptus trees and other vegetation within interchange areas will likely have the greatest impact on the visual quality. However, this will be a temporary effect: as the replacement vegetation grows, the overall impact will be expected to diminish. Other elements, such as replacement structures, new retaining walls, and sound walls will be permanent elements to the existing viewsheds along the corridor.

6.9. CUMULATIVE IMPACTS

A cumulative impact, as defined by the CEQ, is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency or person undertakes such actions. CEQA Guidelines define cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

No cumulative impacts will result from the construction of this project. There are no additional projects anticipated within or around the project area. Therefore, no additional cumulative impacts are anticipated.

7.0. Analysis of Key Viewpoints

The findings presented in this study are based on review of the entire length of the project and its surroundings. The project is assessed from stationary locations as well as from dynamic viewpoints such as vehicles, pedestrians, and bicyclists. However, because it is not possible to analyze every possible view within the project area, the FHWA analysis methodology recommends selecting a number of Key viewpoints (also called Key viewpoints) that represent the potential visual effects of the project and the viewers' experience. The key viewpoints include a representation of all critical visual elements of the proposed project and viewer group types. Descriptions of the key viewpoints are provided below.

The post-construction simulations shown for the key viewpoints on the following pages include application of best management practices (BMP) and avoidance and minimization measures as described in Section 5 of this report, to the extent feasible for each particular view. The most noticeable measures shown in the simulations are listed below:

- Applying architectural detailing to the retaining walls and sound walls, including textures, colors, and patterns;
- Coloring and staining of bridge elements;
- Installing vinyl-coated chain-link fencing along pedestrian areas;
- Saving and protecting as much existing vegetation as feasible;
- Including new landscaping where feasible;
- Using cut-off and shielded light fixtures;
- Including skyline trees in the new plantings.

Aesthetic treatments shown on structures and specific plant types in the simulations are representative only. Actual types of treatments and landscaping will be based on community input. The numbering of the key viewpoints coincides with the numbers on the typical view photographs found in the Landscape Unit sheets (Figures 7 to 13). Key viewpoints within the project area are described below:

- **Key Viewpoint #2, Shopping District Landscape Unit:** This view is of the SB lanes of I-405 looking southeast towards the new direct connector bridge from NB SR-73 to NB I-405 HOV lanes. The view was selected to show the effects of the widened pavement section for freeway travelers.

- **Key Viewpoint #15, South Residential Landscape Unit:** The photo is taken from the Santa Ana Trail adjacent to Moon Park, looking to the north. The view was selected to show potential visual changes from the bike/pedestrian user's perspective.
- **Key Viewpoints #17A and 17B, Industrial Landscape Unit:** These paired photographs shows the new SB I-405 on-ramp from the Euclid/Ellis interchange. Viewpoint 17A is oriented approximately on the opposite bank of the Santa Ana River from Viewpoint #15. Viewpoint 17B shows the same ramp structure slightly to the west and shows the new ramp structures over the entrance to the Orange County Sanitation Facility. These views were selected to show this new ramp structures.
- **Key Viewpoint #20, Industrial Landscape Unit:** This photograph shows the freeway from the perspective of the NB traveler approaching the Ward Street overcrossing. The photo was selected to demonstrate the changes to the visual environment for NB travelers.
- **Key Viewpoint #25, Residential Connections Landscape Unit:** Viewpoint #25 is taken looking east along Dolphin Avenue in front of the parking for Valley Vista High School. The view is from the perspective of the pedestrian/Valley Vista High School user.
- **Key Viewpoint #40, Commercial Centers Landscape Unit:** This view is looking to the south east from the Bolsa Avenue overcrossing. The view is from the perspective of the pedestrian on the bridge and provides a perspective as an overlook into the freeway corridor.
- **Key Viewpoint #50, Northwest Residential Landscape Unit:** Viewpoint #50 is looking to the southwest from the sidewalk along Indian Village Park. The view includes the Springdale Street Bridge. The view was selected to show changes to the visual environment from the perspective of the park user.
- **Key Viewpoint #59, Open Space Residential Landscape Unit:** The photo is taken from the NB lanes of I-405 at the Seal Beach Blvd off-ramp. The view was selected to show the freeway perspective in the area where the proposed additional lanes are the greatest.

Rendered simulations have been developed for each Key viewpoint based on the proposed alternatives. Alternative 1 has a rendering for each Key viewpoint. For Alternative 2 only views

#20, #40, and #59 are included since the other views (Key viewpoints #2, #15, #17, #25, and #50) will be the same in each alternative. For Alternative 3 the Key viewpoints simulated are #2, #20, #40, and #59 with all other views the same as shown for Alternative 1.

For each Key viewpoint that is rendered, there is descriptive text of the orientation, existing visual character/quality, proposed project features, anticipated changes to the visual environment, anticipated viewer response, and the resulting visual impact anticipated in each view. This is followed by the rendered simulations. Lastly, two tables are provided to summarize the anticipated impacts. The first table quantifies the anticipated impacts by using a numerical analysis that corresponds to the low, moderately low, moderate, moderately high, and high ratings identified below. The second table then summarizes the overall anticipated visual impact to the view.

For the impact analysis table, the numeric analysis rating of 1 to 5 corresponds with the following values:

- High = 4.50 to 5.00
- Moderately High = 3.50 to 4.50
- Moderate = 2.50 to 3.50
- Moderately Low = 1.50 to 2.50
- Low = 0 to 1.50

A numeric number was assigned to each of the three visual quality traits (vividness, intactness, and unity) and each of the four visual character traits (scale, diversity, continuity, and dominance) for both the existing and proposed views. The ratings in each category were added up and divided by the number of traits in each category. There is no weighting of any category over any other. For example:

$$(\text{Vividness} + \text{Intactness} + \text{Unity})/3 = \text{Visual Quality Rating}$$

$$(\text{Scale} + \text{Diversity} + \text{Continuity} + \text{Dominance})/4 = \text{Visual Character Rating}$$

From these calculations, the percentage of change anticipated in the view was then calculated by finding the difference between existing and proposed view and then divide that number by the initial rating figure. So for example:

$$(\text{Existing Visual Quality Rating} - \text{Proposed Visual Quality Rating})/\text{Existing Visual Quality Rating} = \text{Percent Change.}$$

The resulting percent change corresponds to the following:

- 0% to 20% = Low degree of change
- 20% to 40% = Moderately Low degree of change
- 40% to 60% = Moderate degree of change
- 60% to 80% = Moderately High degree of change
- 80% to 100% = High degree of change

For the viewer responses shown in the individual Analysis Summary Tables, the existing and proposed will be the same, since the viewers themselves do not change only the stimulus changes. The anticipated changes to character and quality, along with the anticipated viewer response and sensitivity follow the Low – Moderate – High rating designations from above. These are averaged between each category, with the higher rating prevailing to determine the resource change and overall anticipated visual impact within the Key Viewpoint.

The last section of this chapter is an overall Summary Table that pulls the information from the individual tables forward of ease of analysis of the anticipated visual impacts of the project.

7.1. ALTERNATIVE #1 – ADD 1 GENERAL PURPOSE LANE IN EACH DIRECTION

7.1.1. Key viewpoint #2 Analysis

Orientation

The photo is taken from within the Shopping District Landscape Unit, SB I-405 looking to the southeast towards the Fairview Road Bridge. The view is from the perspective of the freeway traveler.

Existing Visual Character/Quality

The paving and walls forms are found in the fore- to mid-ground of the view. These reinforce the roadway's flat planes and linear forms. The San Gabriel Mountains form the backdrop to the view. There is very little vegetation present within the freeway corridor view with the only green space coming from the "borrowed" landscape trees found outside of the freeway.

Figure 17: Key Viewpoint #2 Location Map



The overall visual quality in this view is moderately low due to the expanse of concrete and the absence of landscaping or other elements to create visual interest. The vividness and intactness of the view is rated moderately low while unity is rated as moderate.

Proposed Project Features

Within this view, the proposed width of the roadway paving will not increase from the existing. Minor widening may be necessary in some locations to achieve this, but in general the pavement width will be close to the same. The new ramp connector bridge will be prominent in the fore to mid-ground of the view

Changes to Visual Character

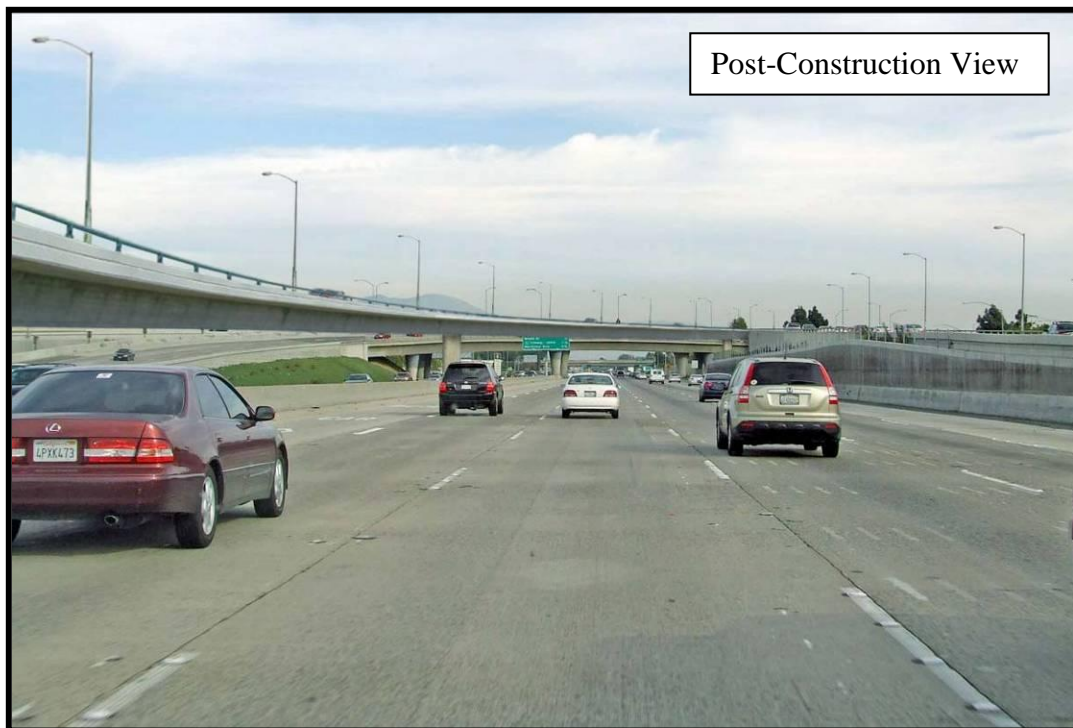
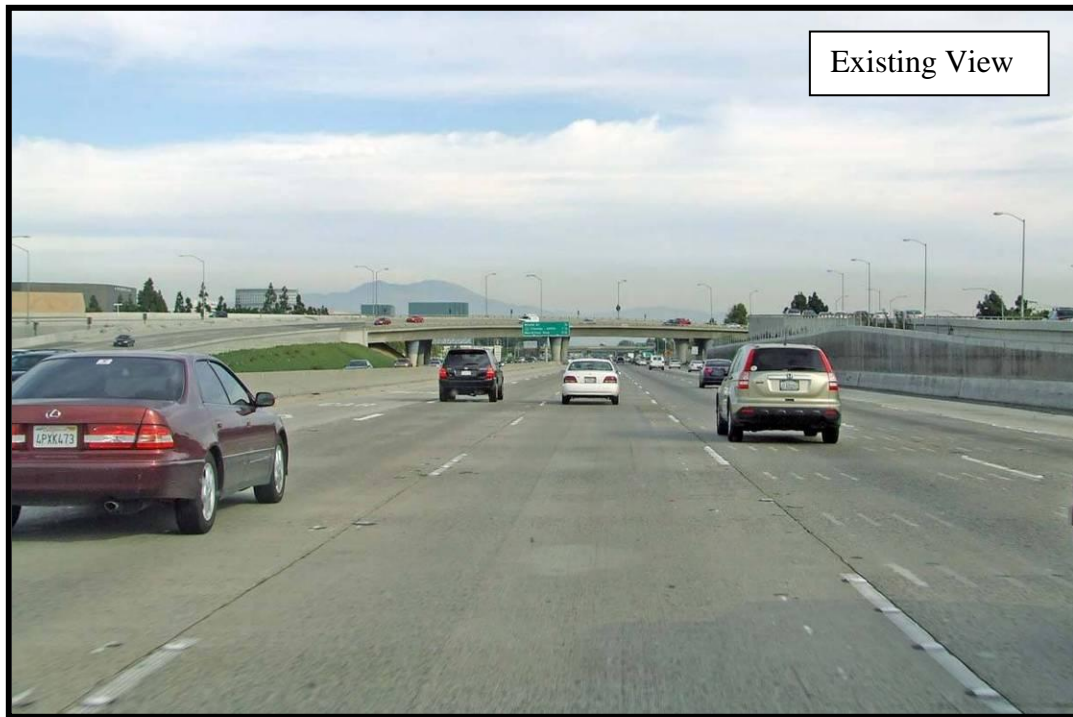
For this alternative, the amount of paving is generally anticipated to be the same as what currently exists. The new connector bridge will add an additional bridge element in front of the existing connector bridges from SR-73. However, this new bridge will be of the same approximate height visual as the existing bridges. It will, however, be closer in the mid- to foreground of the view.

Anticipated Viewer Response

The freeway will serve well over 100,000 views per day with mid- to foreground views of the changes. However, since the new bridge is similar in location and height to the existing bridges, it is not anticipated to create a large change to the visual environment of the corridor. Duration of the views will vary from less than one minute to several minutes. Views from outside areas into the corridor are somewhat limited by the existing ramps and walls along the freeway. However the commercial areas do not have sound walls, so there are views from employees and shoppers from the parking areas. These views shall have a limited duration based on the time to and from the building.

Resulting Visual Impact

For Key viewpoint #2, the overall change to the visual resource will be low. However, because the number of viewers is high due to the high traffic volumes on the freeway coupled with the overall moderate sensitivity of the viewers, the overall visual impact of for this view is slightly greater and will be in the moderately low level.

Figure 18: Alternative 1, Key Viewpoint #2, Shopping District Landscape Unit

Avoidance and minimization measures included in the post-construction image (bottom image) include setting the elevation of the new bridge to match the existing bridges in the interchange. In addition the new bridge forms and lines to match those of the existing.

Table 7.1-1A Alternative 1, Key Viewpoint #2
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	2.0	2.0	Monolithic appearance of highway corridor
	Intactness	1.7	1.7	
	Unity	3.1	3.0	
	TOTAL⁶	2.27	2.23	Percent Change = 1.76% = Low
VISUAL CHARACTER ²	Scale	1.5	1.5	View lacks scaling elements
	Diversity	1.8	1.8	Monolithic appearance of highway corridor
	Continuity	2.8	2.8	
	Dominance	1.7	1.7	
	TOTAL⁶	1.95	1.95	Percent Change = 0% = Low
VIEWER EXPOSURE ³	Location of Views	3.25		
	Number of Viewers	5.0		Freeway travelers over 100,000/day
	Duration of Views	1.0		Under free flow of traffic
	TOTAL⁶	3.08		Moderate exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	4.0		
	Viewer Awareness	1.2		Views are very quick due to short duration
	Local Values and Goals	4.2		
	TOTAL⁶	3.13		Moderate sensitivity

1 – Vividness = memorable, striking (7) to plain (1); Intactness = free of encroaching elements (7) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (7) to disjointed/jarring (1)

2 – Scale = small (7) to monumental (1); Diversity = complex (7) to monolithic (1); Continuity = harmonious (7) to dissonant (1); and Dominance = balanced (7) to prominent/unbalanced (1)

3 – Location = foreground (7) to distant views (1); Number = over 100,000 (7) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1)

4 – Activity = attention on views (7) to attention focused away (1); Awareness = High (7) to Low (1); and Values = High (7) to Low expectations (1)

5 – Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report.

6 – Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.

7 – Ratings: 1 = Very Low, 4 = Moderate, 7 = Very High

This summary is shown in Table 7.1-1B, Analysis Summary:

Table 7.1-1B Alternative 1, Key Viewpoint #2 Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE	VISUAL IMPACT

7.1.2. Key Viewpoint #15 Analysis

Orientation

The photo is taken from within the South Residential Landscape Unit, from along the Santa Ana River Trail looking to the north. The view is towards I-405. Moon Park can be seen on the left side of the photograph.

Existing Visual Character/Quality

The concrete expanse of the Santa Ana River dominates this view. The large area of paving, coupled with the chainlink fence, power poles, asphalt paving and rip-raped slope in the foreground give this a very industrial, man-made appearance.

Figure 19: Key Viewpoint #15 Location Map



The overall visual quality in this view is moderately low due to the expanse of concrete and the absence of landscaping or other elements to create visual interest. Vividness, intactness and unity within the view are rated moderately low.

Proposed Project Features

The most visible element of the project associated with this view will be the new on-ramp from Euclid Avenue that crosses the Santa Ana River at a skew before merging with I-405 near the bikeway undercrossing of I-405. The I-405 bridge over the river will also be widened; but from this view, the widening will be obscured by the new ramp bridge.

Changes to Visual Character

For trail users, the biggest change will be the addition of the on-ramp bridge over the river. This will add a new bridge element into the view and prevent views to the opposite bank of the river. The trail undercrossing of I-405 will be much longer than the current due to the proposed bridge widening for the highway bridge and the addition of a ramp bridge. In addition the new ramp will add a new source of night-time lighting and glare to the adjacent areas.

Anticipated Viewer Response

Traffic on the bike trail is low, assumed to be less than 100 users per day in this area. However, the addition of the ramp bridge in the mid-ground is visibly prominent to trail users and no screening, which might soften the appearance of the structure possible.

Figure 20: Alternative 1, Key Viewpoint #15, South Residential Landscape Unit



Avoidance and minimization measures shown in the post-construction view (bottom image) include pilasters and vine plantings on the sound wall in the area of Moon Park. Bridge elements on the ramp bridge across the river include forms and lines to match the existing bridge over the river.

Table 7.1-2A Alternative 1, Key Viewpoint #15
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	2.0	1.8	Monolithic appearance paved river channel
	Intactness	1.6	1.3	Large number of intrusive elements
	Unity	2.0	1.7	
	TOTAL⁶	1.87	1.60	Percent change = 14.44% = Low
VISUAL CHARACTER ²	Scale	1.5	1.5	View lacks scaling elements
	Diversity	1.8	1.8	Monolithic appearance of river channel
	Continuity	2.8	2.4	
	Dominance	1.7	1.5	
	TOTAL⁶	1.95	1.80	Percent Change = 0.08% Change = Low
VIEWER EXPOSURE ³	Location of Views	3.5		
	Number of Viewers	1.7		
	Duration of Views	2.0		Pace is slower for Bike/Peds equating to longer view time
	TOTAL⁶	2.40		Moderately Low Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	2.8		
	Viewer Awareness	2.5		
	Local Values and Goals	3.7		
	TOTAL⁶	3.0		Moderate Sensitivity

1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1)
2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1)
3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1)
4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1)
5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report.
6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.
7. Ratings: 1 = Low, 3 = Moderate, 5 = High

Resulting Visual Impact

While the new bridge across the river adds a new element to the viewshed, the current view the existing view has such a high degree of encroachment of unaesthetic elements, the addition of the bridge is unlikely to further degrade the view substantially. The overall visual quality will likely drop slightly but remain within the moderately low category, while the viewer response will be moderate given the exposure time and sensitivity of the bikeway users. The overall visual impact within the view will be moderately low.

This summary is shown in Table 7.1-2B, Analysis Summary:

Table 7.1-2B Alternative 1, Key Viewpoint #15 Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE Low	VISUAL IMPACT Moderately Low
	CHANGE TO VISUAL QUALITY	Low		
VIEWER (Response)	VIEWER EXPOSURE	Moderately Low	VIEWER RESPONSE	
	VIEWER SENSITIVITY	Moderate	Moderate	
Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two rating were than averaged again to determine the anticipate Visual Impact. If unable to average, the higher rating was used.				

7.1.3. Key Viewpoints #17A and B Analysis

Orientation

These photos are taken from within the Industrial Landscape Unit, from along the Euclid/Ellis Interchange looking to the south. The view is towards Santa Ana River. The view of 17A is a companion to Key viewpoint #15 and is on the opposite side of the river from that view. View 17B is focused slightly to the west looking south to the view from the light at Ellis and the SB off-ramp. Both views comprise the full view of this area as seen from a point in either direction.

Existing Visual Character/Quality

The foreground elements of the view include green space associated with the Orange County Sanitation District facility with the rocked embankment of the Santa Ana River in the mid-ground.

The overall visual quality in this view is moderate with the green spaces adding to the overall quality of the view and the river embankment elements detracting from the view. Vividness in the view is moderate, with moderate intactness and unity.

Proposed Project Features

Elements of the proposed ramp from Ellis/Euclid will become prominent mid-ground elements in this view and will block background views. The visible elements will include the bridge over the river and the retaining walls approaching the bridge. Just to the west of the view, a second bridge will cross over the main entrance to the sanitation facility.

Changes to Visual Character

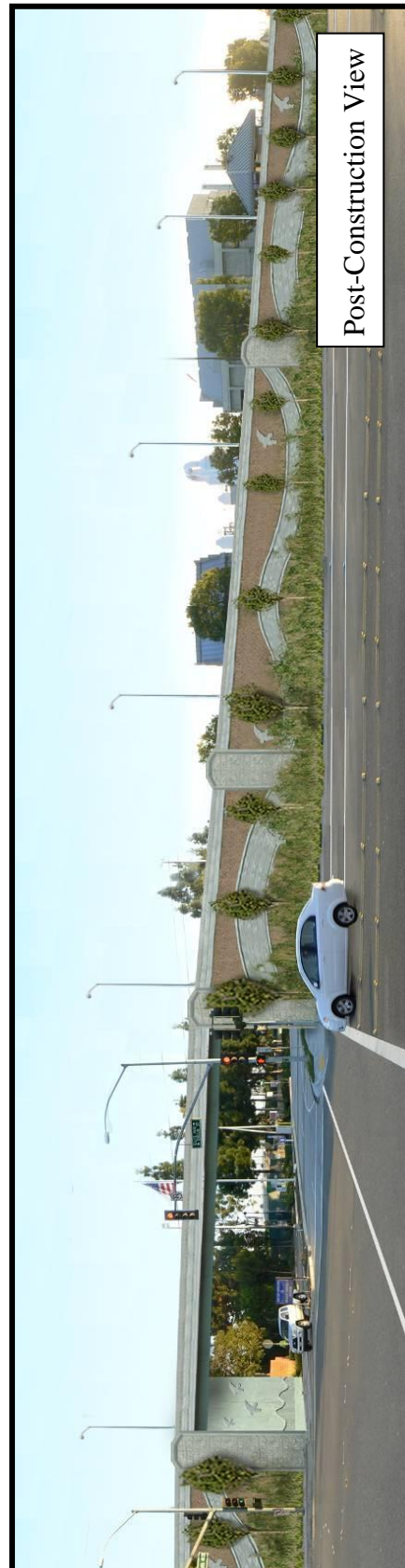
View to the south will essentially be blocked from this vantage point by the proposed project elements. The overall character of the unity will remain industrial; however in this specific location, the more park-like setting will be removed.

Figure 21: Key Viewpoint #17 Location Map



Figure 22A: Alternative 1, Key Viewpoint #17A, Industrial Landscape Unit

Avoidance and minimization measures shown in the post-construction view (bottom image) include pilasters and architectural elements in the new retaining wall along with tree, vine, and other plantings in front of the wall.

Figure 22B: Alternative 1, Key Viewpoint #17B, Industrial Landscape Unit

Avoidance and minimization measures shown in the post-construction view (bottom image) include pilasters and architectural elements in the new retaining wall along with tree, vine, and other plantings in front of the wall.

Table 7.1-3A Alternative 1, Key Viewpoints #17A and B
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	3.5	1.8	Park appearance/green space removed
	Intactness	3.2	1.7	
	Unity	3.4	2.5	
	TOTAL⁶	3.36	2.00	Percent change = 40.47% = Moderate
VISUAL CHARACTER ²	Scale	4.7	3.0	
	Diversity	4.2	2.2	
	Continuity	4.2	2.4	
	Dominance	4.4	2.3	
	TOTAL⁶	4.38	2.47	Percent change = 43.61% = Moderate
VIEWER EXPOSURE ³	Location of Views	3.5		
	Number of Viewers	4.0		Interchange area with high numbers of viewers
	Duration of Views	3.0		
	TOTAL⁶	3.67		Moderately High Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	4.5		Location opposite freeway off-ramp
	Viewer Awareness	4.5		
	Local Values and Goals	4.0		
	TOTAL⁶	4.33		Moderately High Sensitivity

1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1)
2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1)
3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1)
4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1)
5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report.
6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.
7. Ratings: 1 = Low, 3 = Moderate, 5 = High

Anticipated Viewer Response

Due to the location of the ramps associated with the Euclid/Ellis Interchange, the area will be anticipated to have a high number of viewers, although not as high as the freeway corridor itself. Traffic on this portion of the Santa Ana River Trail adjacent to this location is assumed to be less than 100 users per day in this area. However, the addition of a ramp bridge and wall in the fore-to mid- ground is visibly prominent to both interchange traffic and trail users. No screening, which might soften the appearance of the structure, is possible.

Resulting Visual Impact

The change to the visual environment in this view will be moderate. Existing views will be blocked by the proposed structures and the existing green space lost. The number of viewers in this location is moderately high, as is the viewer exposure; so the net effect of the visual changes will be moderately high.

This summary is shown in Table 7.1-3B, Analysis Summary:

Table 7.1-3B Alternative 1, Key Viewpoint #17A and B Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Moderate	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	Moderate	Moderate	
VIEWER (Response)	VIEWER EXPOSURE	Moderately High	VIEWER RESPONSE	
	VIEWER SENSITIVITY	Moderately High	Moderate High	
Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two rating were than averaged again to determine the anticipate Visual Impact. If unable to average, the higher rating was used.				

7.1.4. Key Viewpoint #20 Analysis

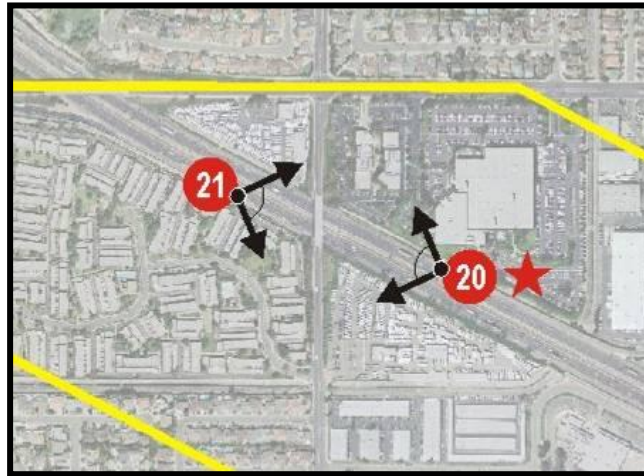
Orientation

The picture shows the I-405 corridor from the NB lanes approaching the Ward Street Bridge. The view is oriented to the Northwest.

Existing Visual Character/Quality

Predominant in this view is the expanse of the existing six lanes of pavement combined with the Ward Street Bridge. The mature eucalyptus trees along the edge of the freeway and in the surrounding industrial parks provide interest and soften the appearance of the large amounts of paving in the view.

Figure 23: Key Viewpoint #20 Location Map



The overall visual quality in this view is moderate with the plantings softening the hard surfaces. Vividness is moderately low, while intactness and unity within the view are rated moderate.

Proposed Project Features

The most noticeable change in the view will be the removal of the existing vegetation and the expansion of the freeway paving. The Ward Street Bridge will be replaced as will the Brookhurst Street Bridge in the background.

Changes to Visual Character

For freeway users, the freeway will appear much wider than the current. The removal of the vegetation from the edge of the ROW will greatly reduce these elements in the view, although these will still be opportunities for plantings on the sloped embankments to the Ward Street Bridge. In addition, vegetation off of the ROW will remain as part of a borrowed landscape to the freeway. The new Ward Street Bridge will be longer and higher than the current, but this will be less noticeable because it will replace an existing bridge and the new bridge will appear proportional to the new freeway cross-section.

Anticipated Viewer Response

As with the other freeway views, the traffic (and therefore the number of viewers) will easily top 100,000 vehicles per day, although the view time for this group will be short.

Figure 24: Alternative 1, Key Viewpoint #20, Industrial Landscape Unit

Avoidance and minimization measures included in the post-construction image (bottom image) include preserved existing trees, new plantings, and aesthetics elements on the new bridge with fencing.

Table 7.1-4A Alternative 1, Key Viewpoint #20
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	2.1	1.8	Removal of skyline trees.
	Intactness	3.2	2.5	
	Unity	3.4	3.1	
	TOTAL⁶	2.90	2.47	Percent Change = 14.83% = Low
VISUAL CHARACTER ²	Scale	2.1	1.8	
	Diversity	2.9	2.2	
	Continuity	2.9	2.4	
	Dominance	3.1	2.3	
	TOTAL⁶	2.75	2.18	Percent Change = 20.73% = Moderately Low
VIEWER EXPOSURE ³	Location of Views	3.5		
	Number of Viewers	1.5		
	Duration of Views	2.0		
	TOTAL⁶	2.33		Moderately Low Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	4.5		
	Viewer Awareness	4.5		
	Local Values and Goals	4.0		
	TOTAL⁶	4.33		Moderate Sensitivity

1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1)
2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1)
3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1)
4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1)
5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report.
6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.
7. Ratings: 1 = Low, 3 = Moderate, 5 = High

Views from the businesses along this portion of the freeway will be of short duration for the most part due to the industrial nature of the development and the lack of windows facing the freeway

Resulting Visual Impact

Change to the visual character and quality will be low. Potential viewer response will be moderate. Therefore the resulting visual impact will be moderate.

This summary is shown in Table 7.1-4B, Analysis Summary:

Table 7.1-4B Alternative 1, Key Viewpoint #20 Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE	VISUAL IMPACT

7.1.5. Key Viewpoint #25 Analysis

Orientation

This key viewpoint is within the Residential Connections Landscape Unit. The view in the photograph is looking to the east along Dolphin Avenue at the existing Slater Avenue overcrossing.

Existing Visual Character/Quality

The existing overcrossing is the predominant image in this view. The bridge and its embankment form the mid-ground views. The existing vegetation found along the bridge embankment soften the structure in the landscape and visual anchor it into the view.

The overall visual quality of the view is moderately high with moderate vividness, moderate intactness and moderately high unity. Although the bridge may be viewed as an encroaching element, the addition of the mature vegetation helps anchor it into the landscape and soften the encroaching aspects of the bridge.

Proposed Project Features

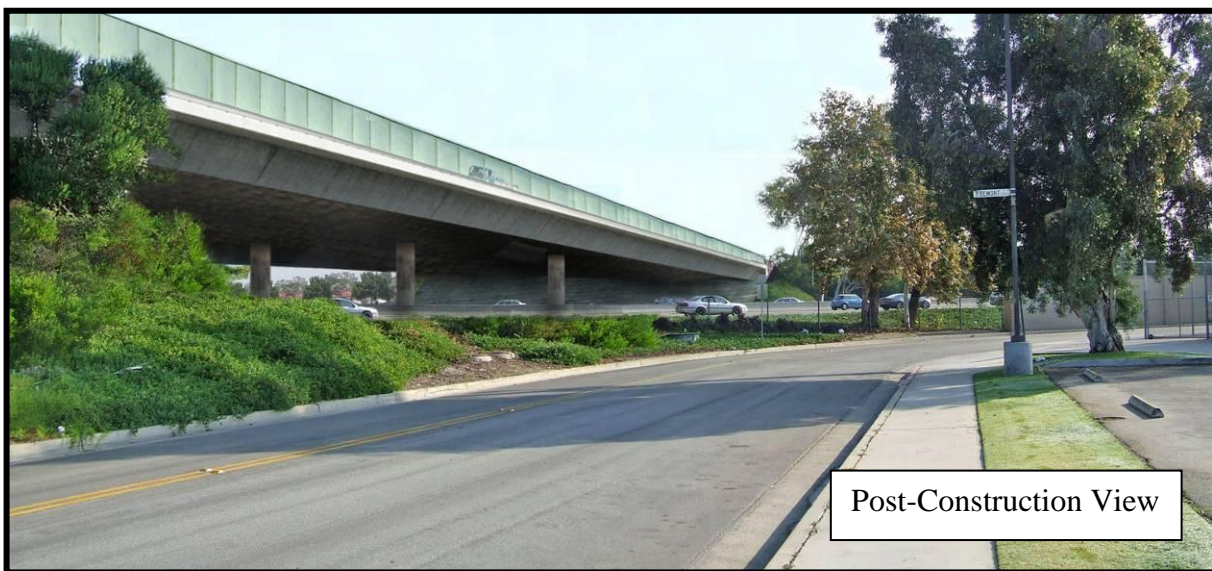
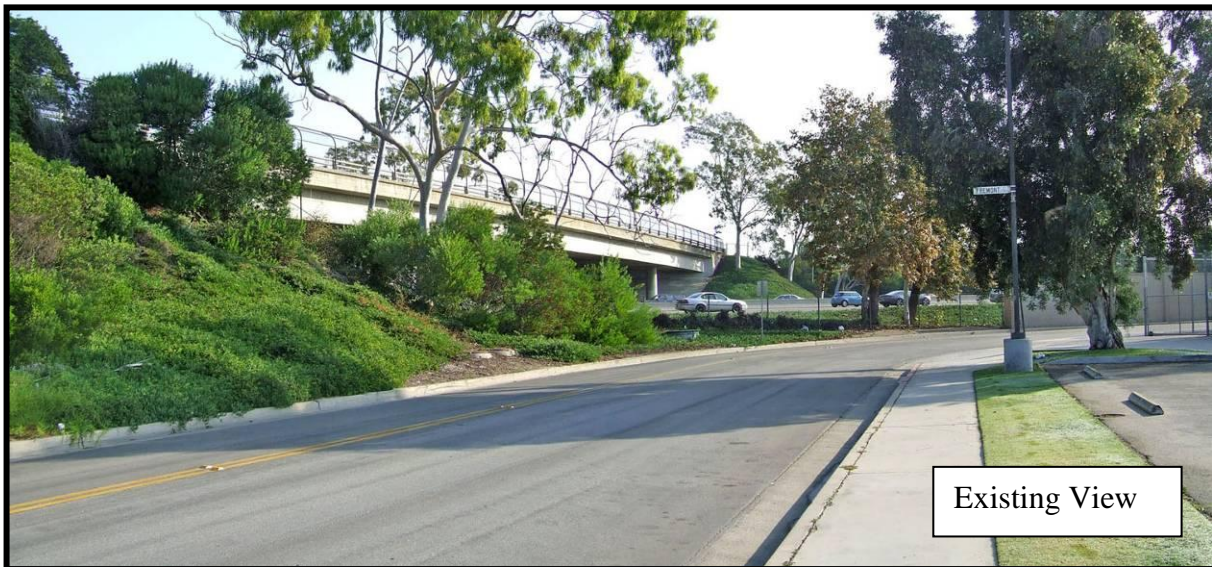
The project will replace the existing Slater Avenue overcrossing and extend the bridge. In addition, the bridge will shift slightly closer to the viewer and will sit higher in the landscape than the existing. The existing vegetation around the existing bridge will be removed by construction activities. New trees and plantings will be included in the project, but it will be years before they reach the size and stature of the existing.

Changes to Visual Character

It is unlikely that the addition of a lane on the 405 will be noticeable from this vantage point. However the new bridge and the associated removal of the existing vegetation will be very noticeable. The bridge, because it is replacing an existing will likely not create a large change to the character; but the associated removal of the vegetation, if left unmitigated, will adversely affect the existing visual quality.

Figure 25: Key Viewpoint #25 Location Map



Figure 26: Alternative 1, Key Viewpoint #25, Residential Connections Landscape Unit

Avoidance and minimization measures included in the post-construction image (bottom image) include preserved existing trees, replacement plantings at on the slope, and mesh fencing on the new replacement bridge.

Table 7.1-5A Alternative 1, Key Viewpoint #25
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	3.5	2.7	Vegetation removal
	Intactness	3.3	2.5	
	Unity	3.8	3.1	
	TOTAL ⁶	3.53	2.76	Percent Change =21.81% = Moderately Low
VISUAL CHARACTER ²	Scale	3.2	2.9	Vegetation Removal
	Diversity	3.4	2.5	
	Continuity	3.2	2.4	
	Dominance	3.1	2.3	
	TOTAL ⁶	3.23	2.53	Percent Change = 21.67% = Moderately Low
VIEWER EXPOSURE ³	Location of Views	3.9		
	Number of Viewers	2.5		
	Duration of Views	2.0		
	TOTAL ⁶	2.80		Moderate Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	2.5		
	Viewer Awareness	3.5		
	Local Values and Goals	3.0		
	TOTAL ⁶	3.00		Moderate Sensitivity
<div>1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1)</div> <div>2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1)</div> <div>3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1)</div> <div>4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1)</div> <div>5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report.</div> <div>6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.</div> <div>7. Ratings: 1 = Low, 3 = Moderate, 5 = High</div>				

Anticipated Viewer Response

Because Fountain Valley High School is located adjacent to this view point the number of anticipated views is several hundred a day. Both student parking and school bus drop-off/pick-up occur on Dolphin Avenue. The school buildings are set back from this view, so it is not anticipated that there will be substantial viewers from the school itself. The duration of views for those on Dolphin Avenue will vary, but are not anticipated to be lengthy, ranging from one to five minutes. Viewers will have a moderate sensitivity to changes in the visual environment.

Resulting Visual Impact

Change to the visual character and quality will be low. Viewer response will be moderately high. Therefore the resulting visual impact will be moderate.

This summary is shown in Table 7.1-5B, Analysis Summary:

Table 7.1-5B Alternative 1, Key Viewpoint #25 Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Moderately Low	RESOURCE CHANGE	VISUAL IMPACT <

7.1.6. Key Viewpoint #40 Analysis

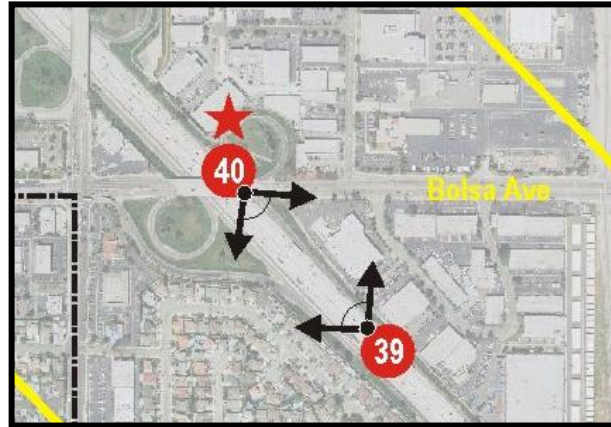
Orientation

The view is within the Commercial Center Landscape Unit. The view is from the Bolsa Avenue Bridge looking southeast and shows and overview of the freeway from the bridge. The view is from the perspective of the pedestrian on the bridge.

Existing Visual Character/Quality

From this bridge vantage point above the freeway, the full extent of the paving is visible to the pedestrians with fore- and mid-ground views. The freeway elements dominate the view and what plantings there are in the corridor are found near the edge of the ROW. The existing railing on the bridge is low without a fence that will interfere with the view into the corridor. The overall visual quality of the view is moderate with moderate vividness, intactness, and unity.

Figure 27: Key Viewpoint #40 Location Map



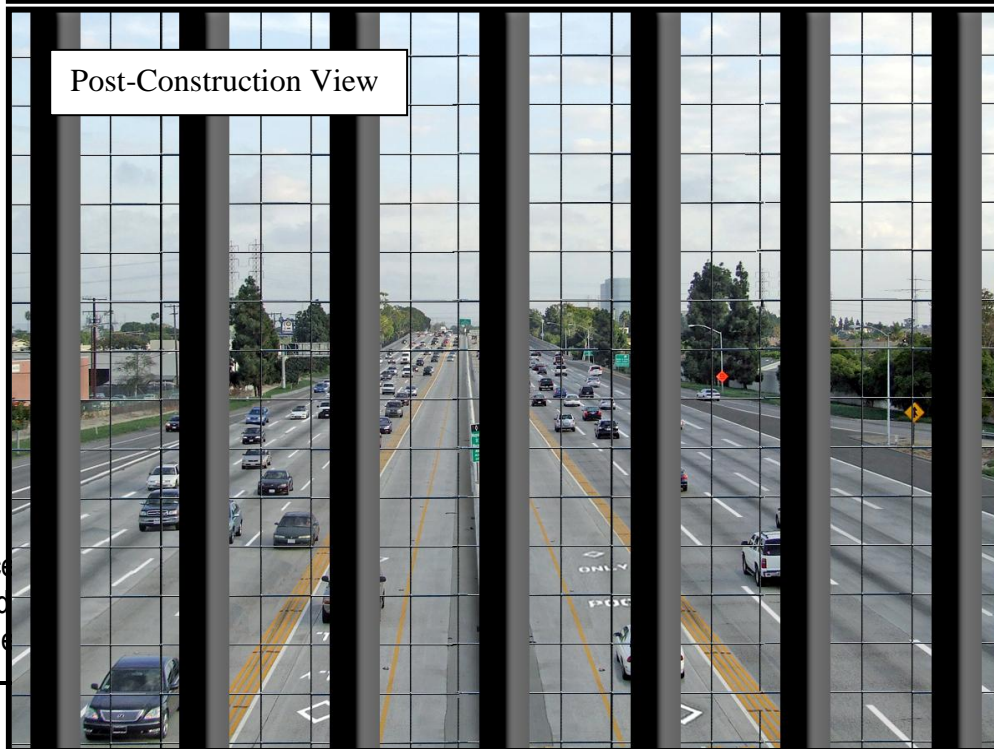
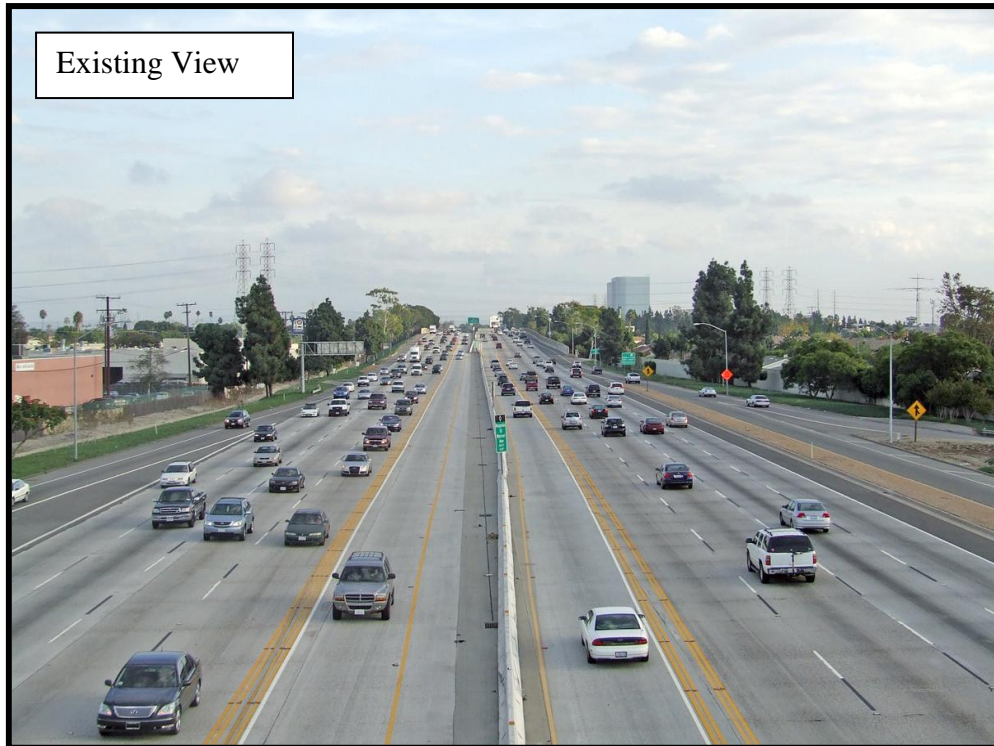
Proposed Project Features

In this view, the dominating presence will remain the roadway, which will appear wider to the pedestrian on the bridge. In this area no additional lanes are proposed, but the shoulders will be widened and brought up to standard. This will widen the paving by approximately 10 to 20-ft. Vegetation along the edge of the freeway will be affected and some of it removed. However, it may be possible to preserve some existing vegetation depending on the placement of barriers in the corridor. A fence or mesh will be required on the bridge and will create a new visual element to viewers from the bridge.

Changes to Visual Character

The wider appearance of I-405 will be a noticeable change to the view. However, given that the widened area is only approximately 15 percent wider than the existing, it is likely to be a small change to the view. The removal of any vegetation along the edges of the ROW will have a noticeable impact because the existing vegetation helps soften the edges of the freeway.

Figure 28: Alternative 1, Key Viewpoint #40, Commercial Center Landscape Unit



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Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

ATTRIBUTE	RATINGS ⁷	REMARKS
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		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	2.8	2.7	
	Intactness	3.0	2.5	
	Unity	3.4	3.2	
	TOTAL⁶	3.06	2.80	Percent Change = 8.49% = Low
VISUAL CHARACTER ²	Scale	3.2	3.0	
	Diversity	3.4	2.4	
	Continuity	2.8	2.8	
	Dominance	2.3	2.3	
	TOTAL⁶	2.93	2.63	Percent Change = 10.24% = Low
VIEWER EXPOSURE ³	Location of Views	3.9		
	Number of Viewers	2.0		
	Duration of Views	2.2		
	TOTAL⁶	2.70		Moderate Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	3.5		
	Viewer Awareness	4.0		
	Local Values and Goals	3.2		
	TOTAL⁶	3.57		Moderately High Sensitivity
<ol style="list-style-type: none"> 1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1) 2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1) 3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1) 4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1) 5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report. 6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3. 7. Ratings: 1 = Low, 3 = Moderate, 5 = High 				

Anticipated Viewer Response

Even though the Westminster Mall is located adjacent to this view location, the number of pedestrians on the bridge is low, anticipated to be about 20 to 30 a day including bicyclists.

Duration of the views will be several minutes or less for viewers to cross the bridge. Given the streetscape requirements within the City Westminster, it is likely that travelers on the bridge, including pedestrians, place a high value on the aesthetics and their sensitivity will be high.

Resulting Visual Impact

Since the amount of additional pavement in this view is a small addition to the existing paving, the change to the visual character and quality will be low. Viewer response will be moderately high. Therefore the resulting visual impact will be moderate.

This summary is shown in Table 7.1-5B, Analysis Summary:

Table 7.1-6B Alternative 1, Key Viewpoint #40 Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE	VISUAL IMPACT
	CHANGE TO VISUAL QUALITY	Low	Low	
VIEWER (Response)	VIEWER EXPOSURE	Moderate	VIEWER RESPONSE	
	VIEWER SENSITIVITY	Moderately High	Moderately High	
Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two rating were than averaged again to determine the anticipate Visual Impact. If unable to average, the higher rating was used.				

7.1.7. Key Viewpoint #50 Analysis

Orientation

The photo, from within the Northwest Residential Landscape Unit is taken from the sidewalk within Indian Village Park. The view is oriented to the west.

Existing Visual Character/Quality

Of the elements associated with the freeway found within this view, the Springdale Street Bridge and the sound wall are prominent elements. The trees within the park, combined with the vegetation on the roadway embankment approach to the bridge act to soften the hard elements of the freeway. Vines along the top of the sound wall do the same for that element. Within this view the overall visual quality is moderate with moderately high vividness, and moderate intactness and moderately high unity.

Figure 29: Key Viewpoint #50 Location Map



Proposed Project Features

The Springdale Street Bridge will be replaced in this view. The new bridge will be slightly higher and longer in proportion to the current bridge. The sound wall will remain in place and will block the views to any of the other changes to the corridor.

Changes to Visual Character

The general visual appearance in the park shall remain very similar to the existing. The replacement of the bridge with a slightly longer and higher span will likely appear very similar to the existing.

Anticipated Viewer Response

Indian Village Park, being a neighborhood park, generally has low use. On any given day there might be approximately 20 visitors to the park. Viewers can be expected to be present for a while, assuming 20 to 30 minutes on average. Given that this is a park setting, visual quality is assumed to be an important factor for park users, which will equate to a high sensitivity to change.

Figure 30: Alternative 1, Key Viewpoint #50, Northwest Residential Landscape Unit

Avoidance and minimization measures shown in the post-construction view (bottom image) include pilasters within the new sound wall and vine plantings on the wall. The new bridge aesthetic elements would include new fencing.

Table 7.1-7A Alternative 1, Key Viewpoint #50
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	4.1	4.1	
	Intactness	3.4	3.4	
	Unity	3.8	3.8	
	TOTAL ⁶	3.06	2.80	Percent Change = 8.49% = Low
VISUAL CHARACTER ²	Scale	4.1	4.1	
	Diversity	3.4	3.4	
	Continuity	3.7	3.7	
	Dominance	3.7	3.7	
	TOTAL ⁶	2.93	2.63	Percent Change = 10.24% = Low
VIEWER EXPOSURE ³	Location of Views	3.0		
	Number of Viewers	2.5		
	Duration of Views	4.1		
	TOTAL ⁶	3.20		Moderate Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	3.2		
	Viewer Awareness	4.2		
	Local Values and Goals	4.1		
	TOTAL ⁶	3.83		Moderately High Sensitivity
1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1) 2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1) 3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1) 4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1) 5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report. 6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3. 7. Ratings: 1 = Low, 3 = Moderate, 5 = High				

Resulting Visual Impact

Since the new bridge will replace an existing bridge in approximately the same location, the change to the visual character and quality will be low. Viewer response will be moderately high. Therefore the resulting visual impact will be moderate.

This summary is shown in Table 7.1-5B, Analysis Summary:

Table 7.1-7B Alternative 1, Key Viewpoint #50 Analysis Summary					
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE	VISUAL IMPACT	
	CHANGE TO VISUAL QUALITY	Low	Low		
					Moderate
VIEWER (Response)	VIEWER EXPOSURE	Moderate	VIEWER RESPONSE		
	VIEWER SENSITIVITY	Moderately High	Moderately High		
Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two rating were than averaged again to determine the anticipate Visual Impact. If unable to average, the higher rating was used.					

7.1.8. Key Viewpoint #59 Analysis

Orientation

The photograph was taken from the NB lanes of I-405 looking to the west towards the Seal Beach overcrossing. The view is within the Open Space-Residential Landscape Unit.

Existing Visual Character/Quality

The highway paving combined with the march of roadway light fixtures in the median are the dominant fore- and mid-ground elements within this view. The Seal Beach Blvd. overcrossing can be seen in the background. Vegetation in the view is limited to areas adjacent to the ROW. While limited, the vegetation does help to soften the view slightly and add scale to the large paved area in the foreground. The overall visual quality for the view is rated to be moderately low, with moderately low vividness, intactness, and unity.

Figure 31: Key Viewpoint #59 Location Map



Proposed Project Features

In Alternative 1, the number of lanes in this portion of the project will increase by one GP lane and one auxiliary lane. The vegetation along the edge of the ROW will be removed to accommodate the added paving. The Seal Beach Blvd. Overcrossing is being replaced as part of a project currently under construction (SR-22 WCC Project).

Changes to Visual Character

The wider pavement surface of I-405 will be a noticeable change to the view. The removal of the vegetation along the edges of the ROW will have a noticeable impact since the existing vegetation helps soften the edges of the freeway. Because the proposed new pavement cross-section will not allow adequate area for replanting along the freeway mainline, any revegetation or landscape will be limited to primarily interchange areas.

Anticipated Viewer Response

As with the other freeway views, the traffic (and therefore the number of viewers) will easily top 100,000 vehicles per day, although the view time for this group will be short. Sensitivity to the changes will be moderately high given the number of viewers in the corridor and the general high expectations of the views.

Figure 32: Alternative 1, Key Viewpoint #59, Open Space-Residential Landscape Unit

Avoidance and minimization measures shown in the post-construction view (bottom image) include pilasters within the new sound wall and vine plantings on the wall. The existing view (top image) has been modified to include the proposed SR-22 HOV Lane since this will be the existing condition for this project.

Table 7.1-8A Alternative 1, Key Viewpoint #59
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	2.3	1.8	
	Intactness	1.8	1.7	
	Unity	2.1	1.6	
	TOTAL⁶	2.06	1.70	Percent Change = 17.48% = Low
VISUAL CHARACTER ²	Scale	2.0	1.8	
	Diversity	2.1	1.7	
	Continuity	1.8	1.5	
	Dominance	1.8	1.6	
	TOTAL⁶	1.93	1.65	Percent Change = 14.51% = Low
VIEWER EXPOSURE ³	Location of Views	3.5		
	Number of Viewers	5.0		
	Duration of Views	2.1		
	TOTAL⁶	3.53		Moderately High Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	3.2		
	Viewer Awareness	4.2		
	Local Values and Goals	4.1		
	TOTAL⁶	3.83		Moderately High Sensitivity

1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1)
2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1)
3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1)
4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1)
5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report.
6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.
7. Ratings: 1 = Low, 3 = Moderate, 5 = High

Resulting Visual Impact

Change to the visual character and quality will be moderate. Viewer response will be moderately high, due mostly to the very large number of travelers on the freeway. Therefore the resulting visual impact will be moderate.

This summary is shown in Table 7.1-8B, Analysis Summary:

Table 7.1-8B Alternative 1, Key Viewpoint #59 Analysis Summary					
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE	VISUAL IMPACT	
	CHANGE TO VISUAL QUALITY	Low	Low		
					Moderate
VIEWER (Response)	VIEWER EXPOSURE	Moderately High	VIEWER RESPONSE		
	VIEWER SENSITIVITY	Moderately High	Moderately High		
Ratings for each category were determined by taking the percent change rating from the previous table and averaging these for the Resource Change/Viewer Response columns. These two rating were than averaged again to determine the anticipate Visual Impact. If unable to average, the higher rating was used.					

7.2. ALTERNATIVE #2 – ADD 2 GENERAL PURPOSES LANE IN EACH DIRECTION

For Alternative 2, simulations were created for Key viewpoint #20, #40, and #59. All other views are similar to those simulations shown under Alternative 1.

7.2.1. Key Viewpoint #20 Analysis

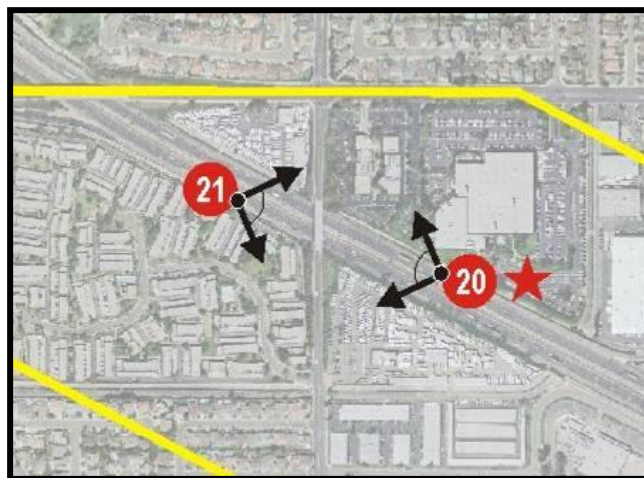
Orientation

The picture shows the I-405 corridor from the NB lanes approaching the Ward Street Bridge. The view is oriented to the northwest.

Existing Visual Character/Quality

Predominant in this view is the expanse of the existing six lanes of pavement combined with the Ward Street Bridge. The mature eucalyptus trees along the edge of the freeway and in the surrounding industrial parks provide interest and soften the appearance of the large amounts of paving in the view.

Figure 33: Key Viewpoint #20 Location Map



The overall visual quality in this view is moderate with the plantings softening the hard surfaces. Vividness is moderately low, while intactness and unity within the view are rated moderate.

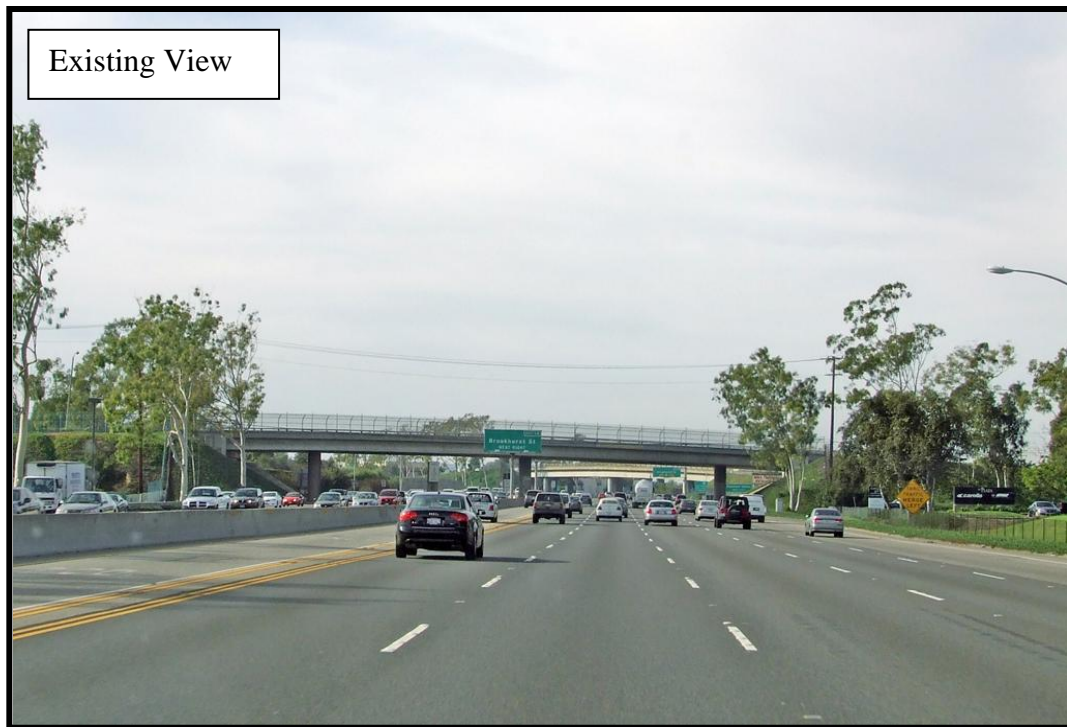
Proposed Project Features

The most noticeable change in the view will be the removal of the existing vegetation and the expansion of the freeway paving. The Ward Street Bridge will be replaced as will the Brookhurst Street Bridge in the background.

Changes to Visual Character

For freeway users, the freeway will appear much wider than the current. The removal of the vegetation from the edge of the ROW will greatly reduce these elements in the view, although there will still be opportunities for plantings on the sloped embankments to the Ward Street Bridge. In addition, vegetation off of the ROW will remain as part of a borrowed landscape to the freeway. The new Ward Street Bridge will be longer and higher than the current, but this is

Figure 34: Alternative 2, Key Viewpoint #20, Industrial Landscape Unit



Avoidance and minimization measures included in the post-construction image (bottom image) include preserved existing trees, new plantings, and aesthetics elements on the new bridge.

Table 7.2-1A Alternative 2, Key Viewpoint #20
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	2.1	1.8	Removal of skyline trees.
	Intactness	3.2	2.5	
	Unity	3.4	3.1	
	TOTAL ⁶	2.90	2.47	Percent Change = 14.83% = Low
VISUAL CHARACTER ²	Scale	2.1	1.8	
	Diversity	2.9	2.2	
	Continuity	2.9	2.4	
	Dominance	3.1	2.3	
	TOTAL ⁶	2.75	2.18	Percent Change = 20.73% = Moderately Low
VIEWER EXPOSURE ³	Location of Views	3.5		
	Number of Viewers	1.5		
	Duration of Views	2.0		
	TOTAL ⁶	2.33		Moderately Low Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	4.5		
	Viewer Awareness	4.5		
	Local Values and Goals	4.0		
	TOTAL ⁶	4.33		Moderate Sensitivity
1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1) 2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1) 3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1) 4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1) 5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report. 6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3. 7. Ratings: 1 = Low, 3 = Moderate, 5 = High				

anticipated to be less noticeable since it is replacing an existing bridge, and the new bridge will appear proportional to the new freeway cross-section.

Anticipated Viewer Response

As with the other freeway views, the traffic (and therefore the number of viewers) will easily top 100,000 vehicles per day, although the view time for this group will be short. Views from the businesses along this portion of the freeway will be of short duration for the most part due to the industrial nature of the development and the lack of windows facing the freeway

Resulting Visual Impact

Change to the visual character and quality will be low. Viewer response will be moderately high. Therefore the resulting visual impact will be moderate.

This summary is shown in Table 7.2-1B, Analysis Summary:

Table 7.2-1B Alternative 2, Key Viewpoint #20 Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE	VISUAL IMPACT

7.2.2. Key Viewpoint #40 Analysis

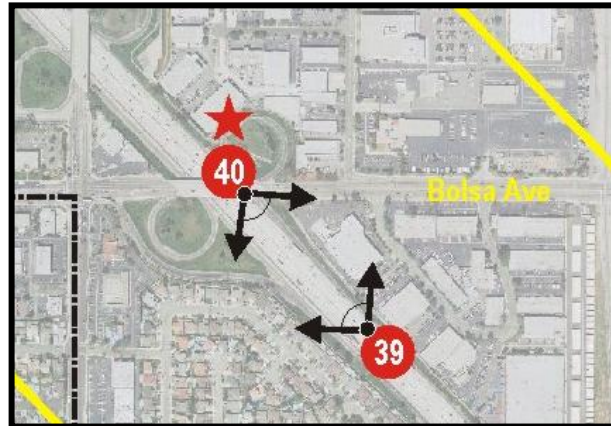
Orientation

The view is within the Commercial Center Landscape Unit. The view is from the Bolsa Avenue Bridge looking southeast and shows an overview of the freeway from the bridge. The view is from the perspective of the pedestrian on the bridge.

Existing Visual Character/Quality

From this bridge vantage point above the freeway, the full extent of the paving is visible to the pedestrians with fore- and mid-ground views. The freeway elements dominate the view and what plantings there are in the corridor are found near the edge of the ROW. The existing railing on the bridge is low without a fence that will interfere with the view into the corridor. The overall visual quality of the view is moderate with moderately low vividness, and moderate intactness and unity.

Figure 35: Key Viewpoint #40 Location Map



Proposed Project Features

In this view, the dominating presence will remain the roadway, which will appear wider with two additional lanes added. Most of the existing vegetation along the edge of the freeway will be removed. However, it may be possible to preserve some existing vegetation depending on the placement of barriers in the corridor. A fence or mesh will be required on the bridge and will create a new visual element to viewers from the bridge.

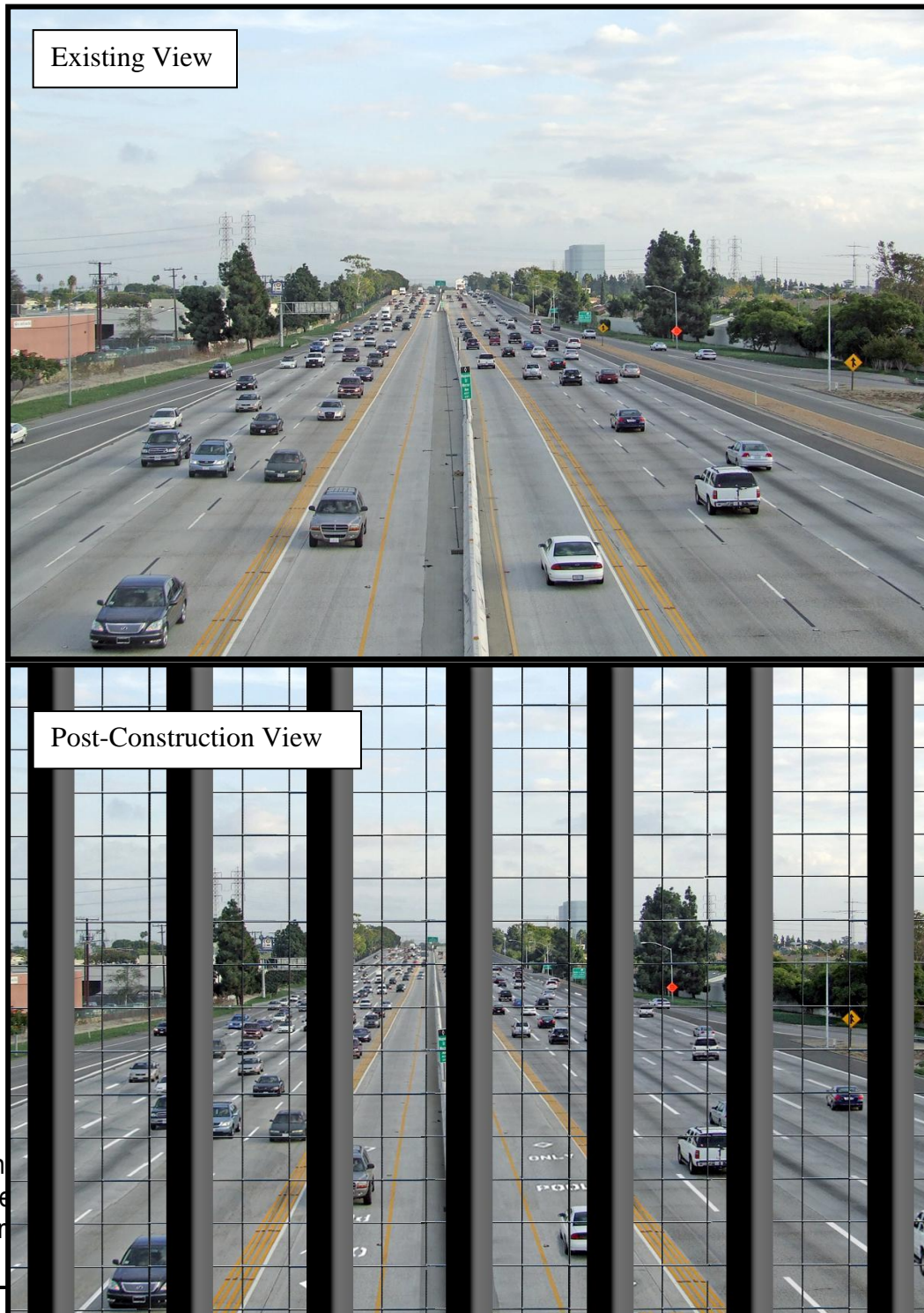
Changes to Visual Character

The wider appearance of I-405 will be a noticeable change to the view. The removal of existing vegetation along the edges of the ROW will have a noticeable impact since it helps soften the edges of the freeway.

Anticipated Viewer Response

Even though the Westminster Mall is located adjacent to this view location, the number of pedestrians on the bridge is low, anticipated to be about 20 to 30 a day including bicyclists. The duration of the views will be several minutes or less for viewers to cross the bridge. Given the streetscape requirements within the City Westminster, it is likely that travelers on the bridge, including pedestrians, place a high value on the aesthetics and their sensitivity will be high.

Figure 36: Alternative 2, Key Viewpoint #40, Commercial Center Landscape Unit

**Table 7.2-2A Alternative 2, Key Viewpoint #40**

Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

ATTRIBUTE	RATINGS ⁷		REMARKS
	EXISTING CONDITION	PROPOSED CONDITION ⁵	

VISUAL QUALITY ¹	Vividness/Memorability	2.8	2.5	
	Intactness	3.0	2.5	
	Unity	3.4	3.1	
	TOTAL ⁶	3.06	2.70	Percent Change = 11.76% = Low
VISUAL CHARACTER ²	Scale	3.2	3.0	
	Diversity	3.4	2.4	
	Continuity	2.8	2.8	
	Dominance	2.3	2.3	
	TOTAL ⁶	2.93	2.63	Percent Change = 10.24% = Low
VIEWER EXPOSURE ³	Location of Views	3.9		
	Number of Viewers	2.0		
	Duration of Views	2.2		
	TOTAL ⁶	2.70		Moderate Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	3.5		
	Viewer Awareness	4.0		
	Local Values and Goals	3.2		
	TOTAL ⁶	3.57		Moderately High Sensitivity
<div>1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1)</div> <div>2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1)</div> <div>3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1)</div> <div>4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1)</div> <div>5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report.</div> <div>6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3.</div> <div>7. Ratings: 1 = Low, 3 = Moderate, 5 = High</div>				

Resulting Visual Impact

The overall change to the visual character and quality of the environment will be low. Viewer response will be moderately high. Therefore the resulting visual impact will be moderate.

This summary is shown in Table 7.2-2B, Analysis Summary:

Table 7.2-2B Alternative 2, Key Viewpoint #40 Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE Low	VISUAL IMPACT

7.2.3. Key Viewpoint #59 Analysis

Orientation

The photograph was taken from the NB lanes of I-405 looking to the west towards the Seal Beach Blvd. overcrossing. The view is within the Open Space-Residential Landscape Unit.

Existing Visual Character/Quality

The highway paving combined with the march of roadway light fixtures in the median are the dominant fore- and mid-ground elements within this view. The Seal Beach Blvd. overcrossing can be seen in the background. Vegetation in the view is limited to areas adjacent to the ROW. While limited, the vegetation does help to soften the view slightly and add scale to the large paved area in the foreground. The overall visual quality for the view is rated to be moderately low, with moderately low vividness, intactness, and unity.

Figure 37: Key Viewpoint #59 Location Map



Proposed Project Features

Two additional lanes will be added to the pavement width in this area, creating a pavement section with 10 lanes. All vegetation within the ROW will have to be removed to accommodate the paving section. The Seal Beach Blvd. overcrossing is being replaced as part of a project currently under construction (SR-22 WCC Project).

Changes to Visual Character

The wider pavement surface of I-405 will be a very noticeable change to the view. The removal of all vegetation along the edges of the ROW will have a noticeable impact since the existing vegetation helps soften the edges of the freeway. Because the proposed new pavement cross-section will not allow adequate area for replanting along the freeway mainline, any revegetation or landscape will be limited to primarily interchange areas.

Anticipated Viewer Response

As with the other freeway views, the traffic (and therefore the number of viewers) will easily top 100,000 vehicles per day, although the view time for this group will be short. Sensitivity to the changes will be moderately high given the number of viewers in the corridor and the generally high expectations of the views.



Figure 38: Alternative 2, Key Viewpoint #59, Open Space-Residential Landscape Unit

Avoidance and minimization measures shown in the post-construction view (bottom image) include pilasters within the new sound wall and vine plantings on the wall. The existing view (top image) has been modified to include the proposed SR-22 HOV Lane since this will be the existing condition for this project.

Table 7.2-3A Alternative 2, Key Viewpoint #59
Anticipated Changes in Visual Character & Quality, and Their Effect on Viewers

	ATTRIBUTE	RATINGS ⁷		REMARKS
		EXISTING CONDITION	PROPOSED CONDITION ⁵	
VISUAL QUALITY ¹	Vividness/Memorability	2.3	1.8	
	Intactness	1.8	1.7	
	Unity	2.1	1.6	
	TOTAL ⁶	2.06	1.70	Percent Change = 17.48% = Low
VISUAL CHARACTER ²	Scale	2.0	1.8	
	Diversity	2.1	1.7	
	Continuity	1.8	1.5	
	Dominance	1.8	1.6	
	TOTAL ⁶	1.93	1.65	Percent Change = 14.51% = Low
VIEWER EXPOSURE ³	Location of Views	3.5		
	Number of Viewers	5.0		
	Duration of Views	2.1		
	TOTAL ⁶	3.53		Moderately High Exposure
VIEWER SENSITIVITY ⁴	Attention of Viewer	3.2		
	Viewer Awareness	4.2		
	Local Values and Goals	4.1		
	TOTAL ⁶	3.83		Moderately High Sensitivity
1. Vividness = memorable, striking (5) to plain (1); Intactness = free of encroaching elements (5) to cluttered/lacking integrity (1); and Unity = coherent/harmonious (5) to disjointed/jarring (1) 2. Scale = small (5) to monumental (1); Diversity = complex (5) to monolithic (1); Continuity = harmonious (5) to dissonant (1); and Dominance = balanced (5) to prominent/unbalanced (1) 3. Location = foreground (5) to distant views (1); Number = over 100,000 (5) to 20 or less (1); Duration = over 4 hours (4) to less than 1 minute (1) 4. Activity = attention on views (5) to attention focused away (1); Awareness = High (5) to Low (1); and Values = High (5) to Low expectations (1) 5. Proposed (post-construction condition) with avoidance and minimization measures in place. Avoidance and minimization measures are described in Section 6 of this report. 6. Total = sum of attributes divided by number of attributes – e.g. Overall Visual Quality = (vividness+intactness+unity)/3. 7. Ratings: 1 = Low, 3 = Moderate, 5 = High				

Resulting Visual Impact

Change to the visual character and quality will be moderately low. Viewer response will be moderately high. Therefore the resulting visual impact will be moderate.

This summary is shown in Table 7.2-3B, Analysis Summary:

Table 7.2-3B Alternative 1, Key Viewpoint #59 Analysis Summary				
VISUAL RESOURCE (Stimulus)	CHANGE TO VISUAL CHARACTER	Low	RESOURCE CHANGE	VISUAL IMPACT

7.2.4. Alternative #3 – Express Lanes

For Alternative 3, simulations were created for Key Viewpoints #20, #40, and #59. All other views are similar to those simulations shown under Alternative 1.

The proposed pavement widths under Alternative 3 are the same as those proposed under Alternative 2. The difference between these two alternatives is that instead of two general purpose lanes, one general purpose lane will be added and one express lane. From a visual perspective the differences are seen exclusively in the pavement markings. Therefore the analysis and results described under Alternative 2 for Key Viewpoints #20, #40, and #59 are the same as what will occur under Alternative 3 and the discussion is not repeated here,; however the simulations are shown in Figures 39, 40, and 41 for these Key Viewpoints, respectively.

Figure 39: Alternative 3, Key Viewpoint #20, Industrial Landscape Unit

Avoidance and minimization measures included in the post-construction image (bottom image) include preserved existing trees, new plantings, and aesthetics elements on the new bridge.

Figure 40: Alternative 3, Key Viewpoint #40, Commercial Centers Landscape Unit

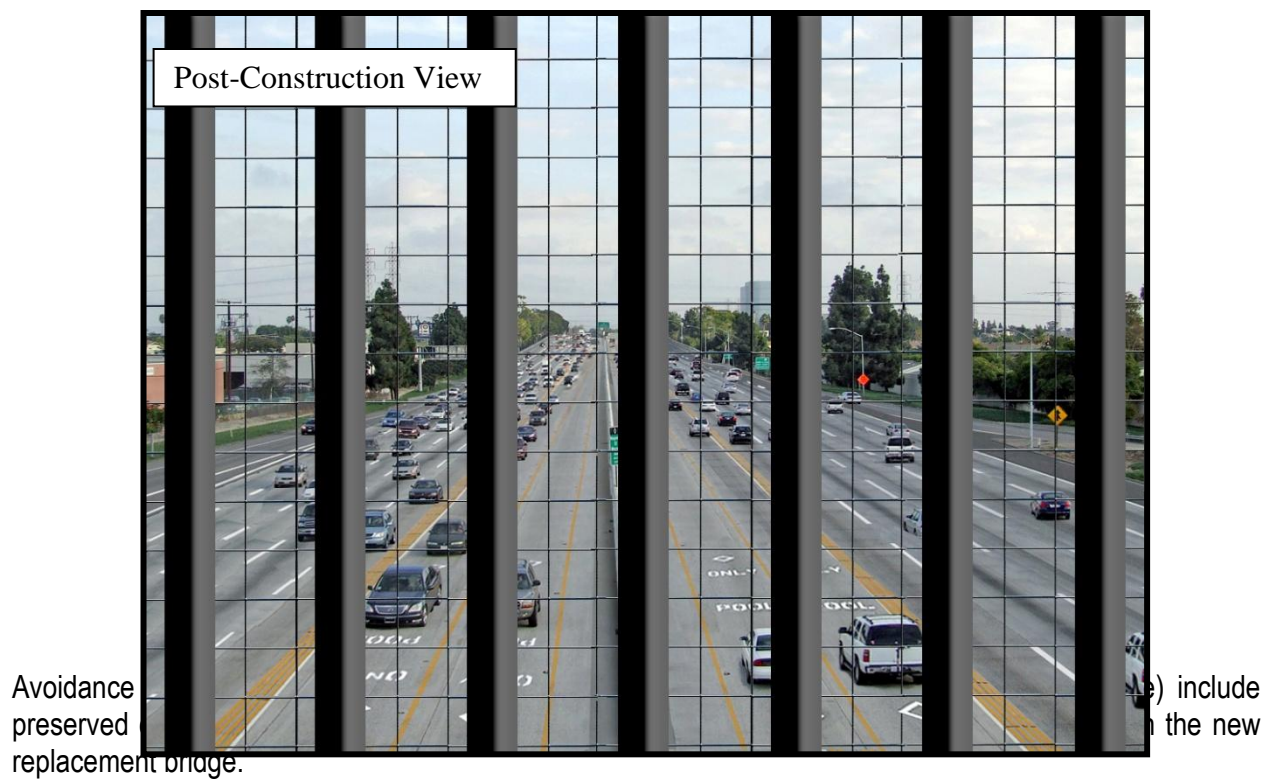
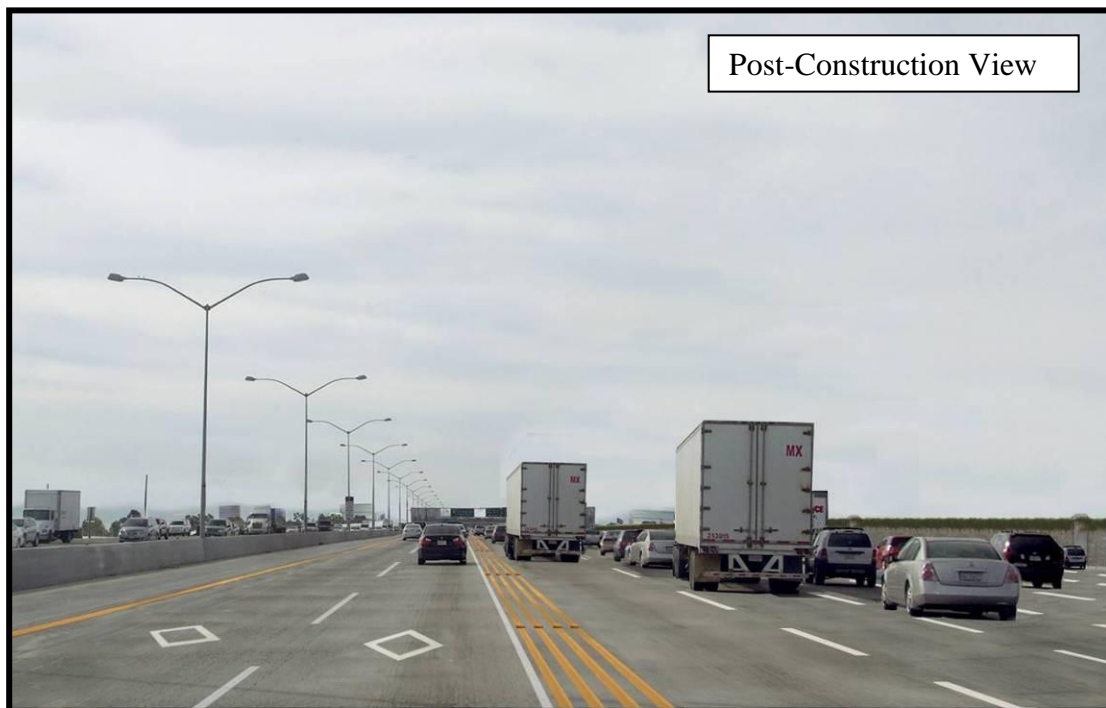
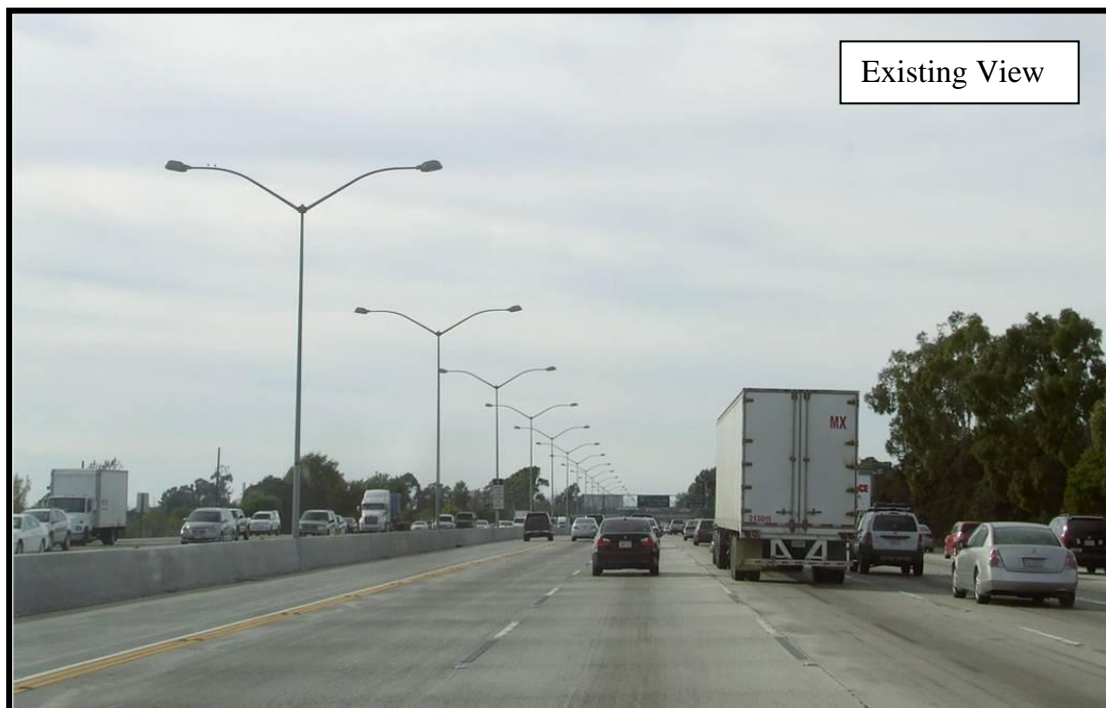


Figure 41: Alternative 3, Key Viewpoint #59, Open Space-Residential Landscape Unit



Avoidance and minimization measures shown in the bottom (post-construction) image include pilasters within the new sound wall and vine plantings on the wall. The existing view (top image) has been modified to include the proposed SR-22 HOV Lane since this will be the existing condition for this project.

7.3. SUMMARY OF ANTICIPATED CHANGES BY KEY VIEWPOINT

Table 7.3-1 provides a summary of each Key Viewpoint's summary analysis for the anticipated change to the visual resource, the anticipated viewer response to that change, and the overall anticipated visual impact for each alternative.

Table 7.3-1 Summary of Anticipated Visual Impacts by Key Viewpoint and Alternative			
KEY VIEWPOINT	ANTICIPATED CHANGE TO VISUAL RESOURCE	ANTICIPATED VIEWER RESPONSE	ANTICIPATED VISUAL IMPACT
ALTERNATIVE 1			
Key Viewpoint #2**	Low	Moderate	Moderately Low
Key Viewpoint #15*	Low	Moderate	Moderately Low
Key Viewpoint #17 A and B*	Moderate	Moderately High	Moderately High
Key Viewpoint #20	Moderately Low	Moderate	Moderate
Key Viewpoint #25*	Moderately Low	Moderate	Moderate
Key Viewpoint #40	Low	Moderately High	Moderate
Key Viewpoint #50*	Low	Moderately High	Moderate
Key Viewpoint #59	Low	Moderately High	Moderate
ALTERNATIVE 2			
Key Viewpoint #20	Moderately Low	Moderate	Moderate
Key Viewpoint #40	Low	Moderately High	Moderate
Key Viewpoint #59	Low	Moderately High	Moderate
ALTERNATIVE 3			
Key Viewpoint #20***	Moderately Low	Moderate	Moderate
Key Viewpoint #40***	Low	Moderately High	Moderate
Key Viewpoint #59***	Low	Moderately High	Moderate
<p>*The images and analyses for these Key Viewpoints are the same for all alternatives</p> <p>** The image and analysis for Key Viewpoint #2 is the same for both Alternative 1 and Alternative 2. The image does not apply to Alternative 3.</p> <p>***The analyses for the Key Viewpoints under Alternative 3 are the same as Alternative 2 (but are repeated here for the sake of clarity).</p>			

8.0. Avoidance and Minimization Measures

Caltrans and FHWA mandate that a qualitative/aesthetic approach be taken to address adverse visual impacts in the project area. This approach seeks to replicate desirable visual qualities that are impacted by a project to restore a viewshed's original level of aesthetics. It fulfills the letter and the spirit of FHWA requirements because it addresses the actual cumulative loss of visual quality that will occur in the project viewshed when the project is implemented. It also constitutes measures that can more readily generate public acceptance of the project.

Visual measures for adverse project impacts, identified in the key viewpoint assessments and summarized in the previous section, will consist of adhering to the following design requirements in cooperation with the Caltrans' District Landscape Architect. The requirements are arranged by project feature and include design options in order of effectiveness. One or more of these options are to be implemented on applicable project features wherever they occur. Some of the measures have been incorporated as project features to minimize adverse impacts and are depicted in Key viewpoint simulations. All aesthetics and landscape treatments shall be included under the direction and approval of Caltrans District Landscape Architect.

Effective implementation of the following avoidance and minimization measures will require a multi-disciplinary design approach as required by the NEPA and Caltrans Policy and Procedures Manual.

8.1. VISUAL MEASURES

The anticipated impacts to the visual environment, as summarized in Table 5.3-1, range from moderately low to moderately high. This indicates that the proposed improvements planned in each of the alternatives will adversely affect the visual environment to a degree. To account for and alleviate these impacts, a series of minimization measures have been developed. The application of these measures will help reestablish the existing level of visual quality and character within the project corridor.

The approach to final design and the application of the visual minimization and avoidance measures shall be incorporated into the project through a CSS approach as identified in Caltrans policies, under the direction of Caltrans District Landscape Architect. In addition, the aesthetics and appearance of the measures will need to use the corridor master plan as a guiding document.

Measure to Preserve Existing Vegetation

8.1.1. Measures to Preserve Existing Vegetation

The existing vegetation along the edges of the corridor help to soften the paved surfaces and in some instances help to screen the presence of sound walls. Since most of the existing trees are mature skyline trees, they also help to humanize the scale of the freeway elements. This is especially true for large trees (over 40 ft), considered sky line trees, because these trees work well with the scale of the highway features. Therefore maximizing the preservation of the existing plantings will help preserve the existing character of the corridor and reduce the amount of future replanting required as part of the project. Trees in conflict with the proposed roadway improvements shall be transplanted in the project area in a location in conformance with Caltrans' planting policy requirements. The District Landscape Architect shall approve all transplants and relocations.

Measure	<p>VA-1: Beginning with preliminary design and continuing through final design and construction OCTA shall plan, save, and protect as much existing vegetation in the corridor, especially eucalyptus and other skyline trees.</p> <p>VA-2: In conjunction with final design, OCTA shall survey exact locations for trees and include in plans.</p> <p>VA-3: During construction, the builder shall protect the drip zone of isolated trees with fencing.</p> <p>VA-4: During construction, the builder shall protect large infield areas of existing plantings to be preserved with fencing.</p> <p>VA-5: During construction, the builder shall transplant existing trees in conflict with the proposed improvements, per Caltrans' District Landscape Architect approval.</p>
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8.1.2. Measures for Noise Barriers

Extensive sound walls exist within the corridor and new walls are planned as part of the improvements. In addition to limiting the sound that travels out from the corridor, they also block views both into and out from the freeway. Often the visual effect for the freeway traveler is to create a "concrete canyon" with all paved surfaces.

Measures for Noise Barriers	
Measure	<p>VA-6: Beginning with final design and continuing through final design and construction, develop plans that apply architectural detailing to the sound walls, including textures, colors, and patterns. Include caps that will provide shadow lines, as shown in the Aesthetics and Landscape Master Plan.</p>

The impacts to the existing vegetation in the corridor will remove plantings currently found along sound walls. Without these softening elements, it becomes necessary to create greater visual interest in the wall itself through the inclusion of pilasters and other architectural elements, especially on existing walls. If replanting is possible, vines and other plantings soften the presence of the wall.

Measures for Retaining Walls

8.1.3. Measures for Retaining Walls

Architectural features, textures and color shall be used to mitigate the appearance of retaining wall surfaces. Walls shall incorporate architectural features such as pilasters and caps to provide shadow lines, provide relief from a monolithic appearance, and reduce their apparent scale. The type of retaining wall selected will influence the design of the architectural detailing (e.g. mechanically stabilized earth, soil nail, cast-in-place). If a variety of retaining wall types are used in the corridor, the architectural detailing shall be consistent throughout the corridor and with the design guidelines that are developed.

Measure	VA-7: Beginning with final design and continuing through final design and construction, develop plans that apply architectural detailing to the retaining walls, including textures, colors, and patterns. Include caps that will provide shadow lines, as shown in the Aesthetics and Landscape Master Plan.
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8.1.4. Measures for Overcrossings, Undercrossings, and Bridges

These aesthetic considerations focus more on the color and texture of the bridge/overcrossing than the basic bridge architecture. However, these treatments can affect the bridge and overcrossing architecture by emphasizing certain aspects over others or by reinforcing the lines and forms created by the architecture. Elements that fall within this area include the design and/or treatments to the parapet (barrier) rails, fencing, pedestrian lighting, abutment and wing wall aesthetics, column rustication, and in certain locations monuments/gateway elements.

Measures for Overcrossings, Undercrossings, and Bridges	
Measure	VA-8: Beginning with final design and continuing through final design and construction, develop plans that apply architectural detailing to the proposed bridges in the corridor, including textures, colors, and patterns. Potential bridge elements that might receive aesthetics treatments include columns, pier caps, parapets, fencing, and abutment and wing walls.

8.1.5. Measure for Landscape Plantings

The existing landscaping in the corridor provides a valuable function by softening the hard surfaces and humanizing the scale of the existing highway features. To lessen the impact of the removal of this vegetation along the corridor, new plantings need to be included within the freeway interchanges. These plantings must work with any existing preserved vegetation. Additionally along the corridor mainline, new or additional plantings shall be included in areas with sufficient area to meet Caltrans setback requirements, to replace those removed by the

construction. Replacement Plantings shall be reviewed and approved by Caltrans' District Landscape Architect.

8.1.6. Measure for Stormwater Treatment Facilities

The requirements for stormwater treatment often conflict with the requirements for landscaping, and the requirements usually increase with each passing year. For corridors like I-405 where paving dominates the landscape, the limited remaining areas must meet both landscape as well as stormwater treatment requirements. In designing the water quality treatment BMP's, the location and appearance of the treatment facilities must be considered. The design and placement of the BMP's shall be reviewed and approved by Caltrans' District Landscape Architect.

Measures for Landscape Plantings

Measure	<p>VA-9: Beginning with preliminary design and continuing through final design and construction, landscape and revegetate disturbed areas.</p> <p>VA-10: During preliminary and continuing through final design, include skyline trees in the planting palette to bring down the scale of the new freeway elements.</p> <p>VA-11: During final design, include an extended 3-year maintenance period as part of the construction period to provide a single source maintenance through the establishment period.</p>
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Measures for Stormwater Treatment Facilities

Measure	<p>VA-12: Beginning with preliminary design and continuing through final design and construction use drainage and water quality elements, where required, that maximize the allowable landscape.</p> <p>VA-13: During final design, locate basins so that they will be at least 10-ft from free recovery areas to allow landscape screening to be installed.</p> <p>VA-14: During final design, design basins so that they appear to be a natural landscape feature such as a dry streambed or a riparian pool. They shall be shaped in an informal, curvilinear manner.</p> <p>VA-15: During final design, include basin slope grading will incorporate slope rounding, variable gradients, and be similar to the surrounding topography to deemphasize the edge. If a wall or hard feature is necessary, it shall be worked into the overall design concept.</p> <p>VA-16: During final design, grading design of any ponds or swales that is sympathetic to the aesthetic and landscape master plan.</p>
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Measures for Stormwater Treatment Facilities (Cont.)

Measure	<p>VA-17: Locate maintenance access drives in unobtrusive areas away from local streets. Such drives must consist of inert materials or herbaceous groundcover that is visually compatible with the surrounding landscape.</p> <p>VA-18: During final design, design all basins shall be designed so that chainlink perimeter fencing is not required.</p> <p>VA-19: During final design, design all visible concrete structures and surfaces to adhere to the aesthetic and landscape master plan when developed.</p> <p>VA-20: During final design, design rock slope protection to consist of aesthetically pleasing whole material with a variety of sizes.</p> <p>VA-21: During final design, limit the use of bioswales within corridor landscape areas. If they must be used, locate them in non-obtrusive areas and designed to appear as natural features.</p>
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9.0. References

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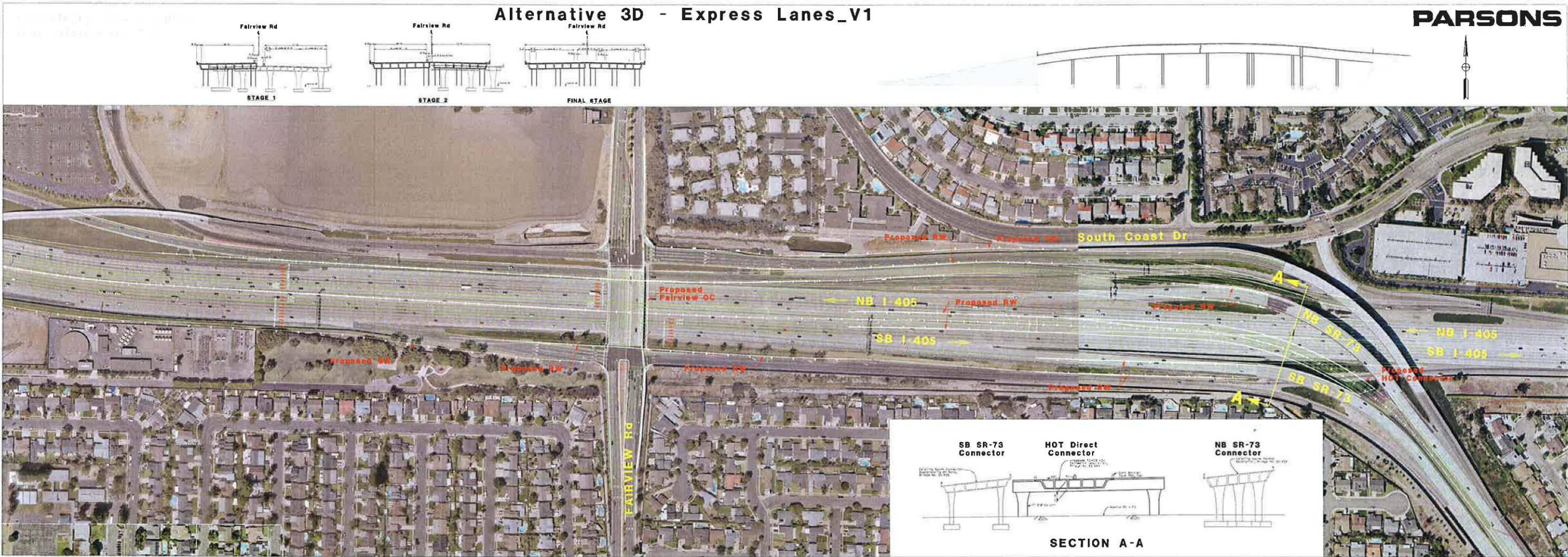
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10.0.List of Preparers and Contributors

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11.0.Appendix A

SR-73 Express Direct Connector Bridge Plan and Elevation View



12.0.Appendix B

Tables of Proposed Retaining and Sound Walls by Alternative

Table 11-1A
Anticipated Major Retaining Wall Locations and Heights for All Alternatives

SIDE OF FREEWAY		RETAINING WALL LOCATION	ALTERNATIVE			MAX WALL HEIGHT, FEET	APPROX WALL LENGTH, FEET
SB	NB		1	2	3		
X	X	SR-73/I-405 HOV Connector Branch Approach			X	22	650
	X	Along west side of Talbert Avenue at the new bridge crossing over I-405	X	X	X	14	375
X		Along west side of Slater Avenue at the new bridge crossing over I-405	X	X	X	18	375
X		Magnolia Street SB Loop Ramp Wall 'A'	X	X	X	22	500
X		Magnolia Street SB Loop Ramp Wall 'B'	X	X	X	24	450
X		Along east side of Magnolia Street at the new bridge crossing over I-405	X	X	X	20	750
X		Euclid Street SB On-Ramp Wall 'A'	X	X	X	32	400
X		Euclid Street SB On-Ramp Wall 'B'	X	X	X	24	600
	X	Warner Avenue NB On-Ramp Wall 'A'	X	X	X	24	400
	X	Warner Avenue NB On-Ramp Wall 'B'	X	X	X	22	700
	X	Along west side of Warner Avenue at the new bridge crossing over I-405	X	X	X	14	575
X		Along west side of Newland Street at the new bridge crossing over I-405	X	X	X	20	375
X		Along east side of Newland Street at the new bridge crossing over I-405	X	X	X	16	400
X		Along (south) west side of McFadden Avenue at the new bridge crossing over I-405	X	X	X	18	350
	X	Along (north) west side of McFadden Avenue at the new bridge crossing over I-405	X	X	X	10	360
X		Along east side of Bolsa Avenue at the new bridge crossing over I-405	X	X	X	14	130
X		Along (south) west side of Goldenwest Street at the new bridge crossing over I-405	X	X	X	10	180

Table 11-1A
Anticipated Major Retaining Wall Locations and Heights for All Alternatives

SIDE OF FREEWAY		RETAINING WALL LOCATION	ALTERNATIVE			MAX WALL HEIGHT, FEET	APPROX WALL LENGTH, FEET
SB	NB		1	2	3		
	X	Along (north) west side of Goldenwest Street at the new bridge crossing over I-405	X	X	X	12	200
X		Along (south) east side of Springdale Street at the new bridge crossing over I-405	X	X	X	18	200
	X	Along (north) east side of Springdale Street at the new bridge crossing over I-405	X	X	X	18	300
X		Along east side of Bolsa Chica Road at the new bridge crossing over I-405	X	X	X	20	350

Table 11-2A

Anticipated Major Retaining Wall Locations and Heights for All Alternatives

SOUND WALL NO.	SIDE OF FREEWAY		SOUND WALL LOCATION & SIDE OF HIGHWAY	ALTERNATIVE			APPROX WALL HEIGHT, FT	APPROX WALL LENGTH, FT
	NB	SB		1	2	3		
S 502	X		Replaces an existing sound wall with the same height along Fairview Road off-ramp.			X	14	528
S 583		X	Replaces a section of an existing sound wall with the same height along Harbor Blvd. on-ramp and Fairview Road off-ramp.			X	14	761
S 614B	X		Located on private property at the pool area of La Quinta Inn.			X	8	64
S 629		X	Replaces an existing sound wall with the same height at the edge of shoulder between Euclid Ave. and Harbor Blvd.			X	14	1275
S 639		X	Replaces an existing sound wall with the same height at the edge of shoulder between Euclid Ave. and Harbor Blvd.			X	16	635
S 649		X	Replaces an existing sound wall with the same height at the edge of shoulder between Euclid Ave. and Harbor Blvd.	X	X	X	12	1380 ³ & 1430 ^{1,2}
S 699		X	Replaces an existing sound wall with the same height at the edge of shoulder and along ROW between Ward Street and Talbert Avenue	X	X	X	16	570
S 705		X	Replaces an existing sound wall with the same height at the edge of shoulder and along ROW between Ward Street and Talbert Avenue	X	X	X	12	705
S 708	X		Along NB edge of shoulder near Talbert Ave.	X	X	X	12	240
S 710	X		Replaces an existing sound wall with the same height at the NB edge of shoulder between Talbert Ave. and Brookhurst Street	X	X	X	12	375
S 718	X		Along the NB edge of shoulder and ROW between Talbert Ave. and Brookhurst Street	X	X	X	16	1405
S 745		X	Along the SB ROW line near Slater Ave.		X	X	12 to 14 ² & 14 to 16 ³	750
S 746	X		Along the NB edge of shoulder near Slater Ave.	X	X	X	12 ^{1,3} & 14 ²	195
S 747		X	Along the SB ROW line near Slater Ave.	X			16	575
S 765		X	Along ROW near Bushard Street	X	X	X	14 to 16	215
S 766	X		Along ROW near Bushard Street	X	X	X	14	145
S 788	X		Along the edge of shoulder of NB off-ramp to Magnolia Street	X	X	X	12	190
S 792	X		Replaces existing sound wall with the same height along the edge of shoulder of NB off-ramp to Magnolia Street	X	X	X	12	835

Table 11-2B

Anticipated Major Retaining Wall Locations and Heights for All Alternatives

SOUND WALL NO.	SIDE OF FREEWAY		SOUND WALL LOCATION & SIDE OF HIGHWAY	ALTERNATIVE			APPROX WALL HEIGHT, FT	APPROX WALL LENGTH, FT
	NB	SB		1	2	3		
S 807		X	Located along the edge of shoulder of SB off-ramp to Magnolia Street.	X	X	X	16 ¹ & 14 ^{2,3}	580
S 811		X	Located along the ROW at the SB off-ramp to Magnolia Street.	X	X	X	10 to 16 ^{2,3} & 16 ¹	285 ¹ & 480 ^{2,3}
S 819		X	Replaces a portion of an existing sound wall with the same height along the SB edge of shoulder between Magnolia and Newland Street.	X			12	175
S 827		X	Replaces an existing sound wall with the same height along the SB edge of shoulder between Magnolia and Newland Street.		X	X	10 to 12	2390
S 828	X		Replaces an existing sound wall with additional height along the edge of shoulder of NB mainline and on-ramp from Magnolia Street.	X			12 to 16	2625
S 834	X		Located along the edge of shoulder of NB mainline between Magnolia and Newland Street.			X	16	1350
S 841		X	Located along the edge of shoulder of SB mainline near Newland Street.	X	X	X	16	550 ¹ & 525 ^{2,3}
S 857		X	Located along the edge of shoulder of SB on-ramp from Edinger Avenue.	X	X	X	12 ¹ & 14 ^{2,3}	225
S 896		X	Located within ROW near McFadden Avenue.	X	X	X	10	110
S 900	X		Replaces an existing sound wall with same height along the edge of shoulder of NB mainline between McFadden and Bolsa Avenue.		X		8	710
S 902	X		Replaces an existing sound wall with same height along the edge of shoulder of NB mainline between McFadden and Bolsa Avenue.	X		X	8	915 ¹ & 1110 ³
S 907		X	Located at the mainline SB edge of shoulder near McFadden Avenue.		X	X	10 to 12 ³ & 14 ²	650 ² & 755 ³
S 908	X		Located along the edge of shoulder of NB mainline between McFadden and Bolsa Avenue.		X		8	850
S 909		X	Located at the mainline SB edge of shoulder near McFadden Avenue.	X			14	435
1 = Alternative 1 2 = Alternative 2 3 = Alternative 3								

Table 11-2C
Anticipated Major Retaining Wall Locations and Heights for All Alternatives

SOUND WALL NO.	SIDE OF FREEWAY		SOUND WALL LOCATION & SIDE OF HIGHWAY	ALTERNATIVE			APPROX WALL HEIGHT, FT	APPROX WALL LENGTH, FT
	NB	SB		1	2	3		
S 910	X		Replaces an existing sound wall with additional height along the edge of shoulder of NB on-ramp from Westminster Blvd.	X		X	10 to 14 ¹ & 10 to 12 ³	650 ¹ & 450 ³
S 911		X	Located along the edge of shoulder of SB mainline between McFadden and Bolsa Avenue.	X			10 to 14	190
S 916	X		Located along the edge of shoulder of NB mainline between McFadden and Bolsa Avenue.	X	X	X	16 ^{1,2} & 14 ³	550 ^{1,2} & 450 ³
S 141		X	Replaces an existing sound wall with the same height within the ROW along the SB mainline between McFadden and Bolsa Avenue.	X	X	X	8	1470 ¹ & 1525 ^{2,3}
S 935		X	Located at ROW along SB on-ramp from Bolsa Avenue.	X	X	X	10 to 16 ^{2,3} & 14 ¹	335 ¹ & 395 ^{2,3}
S 182	X		Replaces an existing sound wall with the same height at the edge of shoulder along the NB mainline between Goldenwest and Edwards Street.	X	X	X	10	1710 ² & 1810 ^{1,3}
S972	X		Replaces an existing sound wall with the additional height at the edge of shoulder along the NB mainline between Goldenwest and Edwards Street.	X	X	X	12 to 14 ¹ , 12 to 16 ² & 14 to 16 ³	410 ² & 310 ^{1,3}
S978	X		Located along the edge of shoulder of NB mainline near Edwards Street.	X	X	X	12 to 14 ¹ , 14 to 16 ³ & 16 ²	990
S 998	X		Located at ROW between Edwards and Westminster Blvd.	X	X	X	16	140
S 1005		X	Replaces an existing sound wall with additional height along the edge of shoulder of SB on-ramp from Westminster Blvd.		X	X	12	175
S 1006	X		Located along the edge of shoulder of NB off-ramp to Westminster Blvd.	X	X	X	16	330
S 1009		X	Located along the edge of shoulder of SB on-ramp from Westminster Blvd.	X	X	X	12 to 16 ¹ & 14 to 16 ^{2,3}	510
S 1016	X		Located along the edge of shoulder of NB on-ramp from Westminster Blvd.	X	X	X	16	540 ¹ & 560 ^{2,3}
S 1020	X		Replaces an existing sound wall with additional height along the edge of shoulder of NB on-ramp from Westminster Blvd.	X	X	X	16	600 ¹ & 325 ^{2,3}

Table 11- 2D
Anticipated Major Retaining Wall Locations and Heights for All Alternatives

SOUND WALL NO.	SIDE OF FREEWAY		SOUND WALL LOCATION & SIDE OF HIGHWAY	ALTERNATIVE			APPROX WALL HEIGHT, FT	APPROX WALL LENGTH, FT
	NB	SB		1	2	3		
S 1022	X		Replaces an existing sound wall with additional height along the edge of shoulder of NB on-ramp from Westminster Blvd.		X	X	16	200
S 1024	X		Located along the ROW between Westminster and Springdale Avenue.	X	X	X	16	150 ¹ & 200 ^{2,3}
S 1026	X		Located along the ROW near Springdale Avenue.	X	X	X	16	150 ^{1,3} & 100 ²
S 1028	X		Replaces an existing sound wall with additional height along the ROW near Springdale Avenue.	X	X	X	16	75 ^{1,3} & 200 ²
S 1079		X	Replaces an existing sound wall with additional height along the ROW near Valley View Street.	X			14	130
S 1083		X	Located along the ROW near Valley View Street.	X	X	X	14 to 16 ^{2,3} & 12 ¹	555
S 1116	X		Replaces an existing sound wall with the same height at the edge of shoulder along the NB mainline between Springdale and Seal Beach Dr.		X	X	18	400 ³ & 470 ²
S 1132	X		Replaces an existing sound wall with the same height at the edge of shoulder along the NB mainline between Springdale and Seal Beach Dr.			X	18	1553
S 1142	X		Replaces an existing sound wall with the same height at the edge of shoulder along the NB mainline between Springdale and Seal Beach Dr.		X		18	3167
S 431		X	Replaces an existing sound wall with the same height at the edge of shoulder along the SB mainline between Seal Beach and SR-22.	X	X	X	10 to 14	1700
S 434	X		Replaces an existing sound wall with the same height at the edge of shoulder along the Old Ranch PKWY near Seal Beach Dr.	X	X	X	14	800 ¹ & 745 ^{2,3}
S 445		X	Replaces an existing sound wall with the same height at the edge of shoulder along the EB SR-22 connector to SB I-405.	X	X	X	14	975 ^{1,2} & 675 ³
S 464	X		Replaces a portion of an existing sound wall with the same height at the ROW near SR-22.	X	X	X	16	140
S 1226	X		Located at the ROW near the NB I-405 to WB SR-22.	X	X	X	16	440
1 = Alternative 1 2 = Alternative 2 3 = Alternative 3								

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